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# JOURNAL

OF

## THE ASIATIC SOCIETY.

No. 54.—June, 1836.

I.—Notes on the Buddhas from Ceylonese authorities, with an attempt to fix the dates of the appearance of the last four; being those of the *Mahá Bhadra Kalpa*, (or Present Age.) By Captain J. FORBES, H. M. 78th Highlanders.

1. Of the Buddhas who appeared prior to the *Mahá Bhadra Kalpa*, the names of the earliest Buddhas mentioned in Buddhist writings, are

Brahma Buddha.  
Gautama Buddha\*.  
Tanhankara.  
Medhankara.  
Saranankara.

The following are the names of twenty-four Buddhas, who successively foretold the advent and exaltation of the present Gautama Buddha.

1 Deepankara,	12 Sujato,
2 Kondhanyo,	13 Piadassi,
3 Mangalo,	14 Athadassi-Atthadassi,
4 Sumano,	15 Dhammadassi,
5 Reweto,	16 Siddatto,
6 Sobhito,	17 Tisso,
7 Anomadassi,	18 Cusso,
8 Padumo,	19 Wipassi,
9 Narado,	20 Sikhi,
10 Padumutto,	21 Wissabhu.
11 Sumedo,	

Commencement of the *Mahá Bhadra Kalpa*.

22 Kakusanda,  
23 Konagamma,  
24 Kásiyapa.

\* Not the Gautama Buddha now worshipped.

Every Buddha, on having attained the object of his ambition, not only appropriated to himself, and received from his followers the innumerable titles of former Buddhas, (many of which were appertaining to the gods,) but by visiting the same places, enjoining the same observances, retaining the same moral laws, and imitating all their actions; he identified himself with the meritorious deeds as well as with the moral doctrines of his predecessors. From these circumstances it is not easy to particularise the acts of any individual Buddha; and the difficulty has been increased by writers on this subject, who in general have preferred aimless dissertations to historical incidents.

Of KAKUSANDA,

*The first Buddha in the present dispensation, B. C. 3101\*.*

At the commencement of this the (*Mahá Bhadra Kalpa*) most auspicious age of the world according to Buddhists, KAKUSANDA BUDDHA appeared in *Magadha*†, when KSHEMA‡ was king, and the name of the capital was Kshemawattinuwaras§. He visited Ceylon, which then was known by the name of *Oja Dweepia*, and first manifested himself from Adam's peak, at that time called *Dewiyakuta*, and on the summit of which he found memorials of the religion of former Buddhas were still existing. The Mahamuvuna gardens (comprising the plain on which the most sacred edifices at Anuraadhapura are situated) was called Mahátirtiwana; and to the eastward of these was the city Abhya, the residence of a king of the same name; here also was situated the Piyal Kula mountain, (afterwards called Mehintallai) and a cave which the Buddha chose for his temporary abode.

A pestilence which had swept off multitudes, having ceased at the time of KAKUSANDA's arrival, the people, believing that it was by his miraculous interpositions, eagerly listened to the exhortations, and adopted the religion of their benefactor. The garden Mahátirtiwana having been offered to the Buddha, he sent to Kshemawatti to procure a branch of the Maharibodi tree; that it might remain as a memorial of himself, and an emblem of his religion. The tree was

\* The period not of his birth or death, but of his becoming a Buddha.

† Magadha, Bahar.

‡ Kshema.

§ Kshemawatimuwara or Khemawattinuwara, probably Saewatnnwara, or Gaya; the great antiquity of which city may be inferred from the manner in which it is mentioned in the *Rámáyana*. In the transmigrations of Gautama Buddha, before he attained the perfection necessary for a Buddha, he is said to have been incarnate at this time as this very king KSHEMA, vide *Siddhamasuma*, *Thupa Wanzae*, &c.

sent by the king KSHEMA under charge of the priestess RUCHITANANDA and the priest MAHADEWA, and accompanied by numerous priests, priestesses, and attendants; they arrived safely, and the tree was planted by the king ABHYA according to the privilege; and with the ceremonies which had been usual on such fortunate occasions by former monarchs of the island. The place selected for the tree was near the plain Sirisamála, where the Buddha had once rested himself, and which in after times became the site of the Lowa Maha Páyá\*. Having preached from where the Thupa Rama† afterwards stood, and made innumerable converts; KAKUSANDA bestowed his drinking cup as a memorial to his followers; appointed RUCHITANANDA chief over 500 priestesses, and MAHADEWA over 1000 priests, to maintain religion; then having seen the consecrated places of Ceylon, and revisited Deviya Kuta, he departed to the continent of India.

From these particulars it would not appear that the commencement of the *Mahá Bhadra Kalpa* was marked by any general revolution in the face of nature; but the commencement of an era at that time may be rationally accounted for, by the successful ministry of KAKUSANDA BUDDHA; this would also account for the same era being styled *Kali yuga* (age of vice) by the bráhmans; and *Mahá Bhadra Kalpa* (the most auspicious age) by the Buddhists.

In support of my opinion for fixing so remote a period as the commencement of the *Kali yuga* B. C. 3101, as the era of this Buddha; I have the unanimous assertion of Buddhist writers, that he appeared at the commencement of the present age, or *Mahá Bhadra Kalpa*. Sir WILLIAM JONES‡ writing on this subject says, “The best authority after all is the *Bhágawat* itself, in the first chapter of which it is expressly declared, that BUDDHA the son of JINA would appear at *Cicataş* for the purpose of confounding the demons, just at the beginning of the *Kali yuga*.” Again I quote from the same authority||: “Bhrigu says, From this MENU named SWÁ YAMBHUVA, ‘or sprung from the self-existing,’ came six descendants, other MENUS, or perfectly understanding the scriptures, each giving birth to a race of his own all exalted in dignity, eminent in power—

\* At Anuraadhapura. In the remains of this building are still to be seen (1600) rough stone pillars.

† At Anuraadhapura. A Dagobah and Wiharé, now in ruins; the slender, but elegant columns of which, have not inaptly been compared to the Areka tree.

‡ Sir WILLIAM JONES, *Asiatic Researches*, VII. 122.

§ Bahar.

|| Sir WILLIAM JONES, *Laws of Menu*, Article on the Creation, Section 61.

“Swárochisha,—Autami,—Tamasa,—Raiwata likewise, and Chácshusha beaming with glory, and Vaivaswata child of the Sun.”

Chácshusha is evidently the same name as Kakusanda, the final letters being a usual honorary affix in Cingalese. He is called by BENTLEY, Cháksooso\*, by WILFORD Cháshusha†, by WILSON Chákshusa‡, by COLEBROOKE Cucuch'handa§; he is also called Karkutchanda||, Prachanda Dewá¶, and Krakuchanda\*\*; and appeared as a Menu or Muni, (which in Cingalese is a term applied to a Saint or a Buddha,) previous to Vaivaswata, who by many of the most eminent chronologers has been considered identical with Noah, B. C. 2984.††

The Cingalese works state that KAKUSANDA was of the race of SAMATA Rája. The first Menu, also the first king, and elected by the people, after they had lost immortality and become subject to earthly passions‡‡.

At the time of KAKUSANDA BUDDHA, Adam's peak was called Dewiyakuta, (peak of God;) when KONAGAMMA BUDDHA visited it B. C. 2100, the name was Samantkuta, (peak of Saman.) This appellation I should infer from Cingalese history it obtained from SAMAN§§, brother of RAMA; whose era is fixed by the date of the partial submerging of Ceylon, B. C. 2387, which is three years previous to the date of the flood|||, and thus refers KAKUSANDA BUDDHA to a period preceding that event.

The following quotation is from TOD's Annals of Rájasthán; “Though a passage in the Agni Purán indicates that the line of Súrya, of which ICSHWACA was the head, was the first colony which entered India from Central Asia, yet we are compelled to place the Patriarch BUDDHA as his cotemporary, he being stated to have come from a distant region, and married to ELLA the sister of ICSHWACA.” Referring to the era of RÁMA as already given, viz. B. C. 2387, and

\* Remarks on the eras and dates of the ancient Hindus, Asiatic Res. V.

† WILFORD's Chronology of the Hindus, Asiatic Res. V.

‡ Sanscrit Dictionary.

§ COLEBROOKE's observations on the Jains, Asiatic Res. IX.

|| Asiatic Journal, 1832, p. 380.

¶ Asiatic Journal, 1834, p. 220.

\*\* Asiatic Journal, No. 48, p. 87.

†† Dr. LLOYD's Bible chronology.

‡‡ Jananda Pota, (Cingalese work.)

§§ SAMAN, LACKSHMANA, brother of RAMA.

||| According to Dr. LLOYD's Bible chronology, Noah was born B. C. 2984, and the flood commenced when Noah had lived six hundred years, two months and seventeen days, Gen. vii. 11; or B. C. 2384.

allowing 20 years as the length of each reign of the thirty-six sovereigns from RA'MA up to IC SHWACA, would give the date B. C. 3107 as the time of IC SHWACA, and confirm the above passage regarding BUDDHA being contemporaneous with this monarch; and a similarity of sound, as well as coincidence of date, tempts me to suggest the possible identity of IC SHWACA with K SHEMA or K SHEMAKA, who is described as being the royal patron of KAKUSANDA BUDDHA\*.

To explain why I have fixed the era of RA'MA, B. C. 2387. The Rájawalia states that from the time of RAWENA until the era of GAUTAMA BUDDHA (at which time a connected Cingalese history commences†) 1844 years had elapsed. In several Cingalese works‡ the partial submerging of Ceylon is mentioned as having occurred immediately after the death of RAWENA; and the consequent decrease in the circumference of the island is stated to have been 133 yoduns or 2128 miles§. It was in this visitation that the splendid capital Srí Lanká-pura (which was situated to the north-west of the present island) is said to have been overwhelmed, and

“Towers and temples through the closing wave  
A glimmering ray of ancient splendour gave.”

Of KONAGAMMA,

*The second Buddha of the present dispensation, B. C. 2099.*

At a time when long continued draught had caused scarcity and sickness in Ceylon, KONAGAMMA BUDDHA appeared||; and seasonable rains having fallen, the consequent prosperity of the country was attributed to his power and presence. At this time the island was called Wara-dwipa, and the peak on which he, according to the custom of his predecessors, commenced his ministry in Ceylon, was

\* Thupa Wansae, Buddha Wansae, Mahawansae, Saddhama Sumana, Rájawalia, Rájakatnaikara.

† Translated and arranged by Mr. TURNOUR, from B. C. 543 to A. C. 1815.

‡ Rajawalia, Kadaimpota, Lanká Wistrie. The Kadaimpota also records a similar calamity as having reduced Lanká to its present size, B. C. 267.

§ In GUTZLAFF'S History of China, the following near coincidence of dates with regard to the deluge occurs. “We are now arrived at a period which CONFUCIUS himself has delineated.”

“YAOU began to reign B. C. 2337.” “There is an extraordinary catastrophe mentioned in the reign of YAOU, which is one of the greatest events in the history of mankind, the deluge. MANG-TZE (Mencius) in speaking of the same event, remarks, that at the time of YAOU the deluge had not yet entirely subsided. During the reign of YAOU, YU commenced the draining of the waters, and the confining of the rivers to their beds.”

|| KANAKA-MUNI, Asiatic Journal, 1834, p. 220.

called Samanta-kuta or Samanella; from thence he visited the capital Wadhmanika, situated on the south side of the Maha-Mewuna gardens\*, which then bore the name of Maha-Antowana, and being acknowledged as a Buddha the king SAMURDHA dedicated to him these gardens by the name of Anopawana. At the request of the prophet, the king SOBHANA sent from the continent of India a branch of the Udambara tree, accompanied by many priests and priestesses; the whole were received with due honor, and the Udambara tree planted by the king SAMURDHA became the emblem of the new Buddha. KONAGAMMA BUDDHA (after having visited the various places consecrated by the presence of former Buddhas in Lanká) gave charge over the priestesses to the chief priestess KANAKADANTA, and over the priests having placed SUDHAMA, he bestowed his girdle as a memorial to his followers, and departed for the city of king SOBHANA.

Regarding the date which I have assigned to this Buddha, viz. B. C. 2099.

I have connected the reign of PRADYOTA king of Magadha, with the time of KONAGAMMA BUDDHA, by the various accounts of the incarnations and transmigrations of GAUTAMA BUDDHA; these all state that at the time of KONAGAMMA, GAUTAMA was incarnate as that fortunate king of Magadha, PARWATIA or PARGUYATA†; whom I consider the same as PRADYOTA of JONES and BENTLEY, PRADHYOTA of WILFORD, and PRIDOT'HANA of TOD. These authorities all agree that in the reign of that king a Buddha appeared, although they have all assigned different dates to the event. I follow that of Sir WM. JONES, who gives his authority; a quotation from the Bhagawatamrita. "He (Buddha) became visible the thousand and second year of the Kali yuga being past."

"PURANJAYA son of the twentieth king (of Magadha) was put to death by his minister, SUMACA, who placed his own son PRADYOTA, on

\* At Anuraadhapura.

† Lest the father of PRADYOTA being a murderer, and himself an usurper, should be made objections against this being the king PARWATIA, in which Buddhist writers have declared that GAUTAMA BUDDHA was incarnate, I quote the life of the most revered of Buddhist sovereigns, DHARMA SOKA, as it is written by Buddhist priests, and which may be thus abridged:

He commenced his career as ASOKA, a prince and a bráhman; attained power by becoming a fratricide and usurper; B. C. 323, retained it as a zealous Buddhist, and died king of India, at Patalipura, (Patna.) His memory has been extolled by all Buddhist writers, and his name and deeds are sanctified by the appellation DHARMA (the righteous) prefixed to ASOKA.

We also find, that GAUTAMA was believed to have been incarnate as SAKYA, a chief of the YAKSHAS, and as ATULA a king of the Nagas.



the throne of his master ; and this revolution constitutes an epoch of the highest importance ; first, because it happened, according to the Bhagawatamrita, two years exactly before BUDDHA'S appearance in the same kingdom ; next, because it is believed by the Hindus to have taken place 2100 B. C. ; and lastly, because a regular chronology, according to the number of years in each dynasty, has been established from the accession of PRADYOTA to the subversion of the genuine Hindu government." In the Cingalese accounts we find KONAGAMMA received that protection and assistance from the king SOBHANNA\*, which his predecessor had received from the king KSHEMA. In the list of kings of the line of Buddha, of the Ooru or Oorvasu branch, in Colonel Tod's tables, and about the year B. C. 2050, we find the name of the king SOVAHANA ; and in supposing SOBHANNA and SOVAHANA identical, there is neither discrepancy of dates nor designation, for KONAGAMMA BUDDHA only appeared B. C. 2099, and as there is no letter *v* in Cingalese, SOVAHANA would be written SOBHANNA, that being the nearest transmutation.

*Of KASYAPA,*

*The third Buddha in the present dispensation, B. C. 1014.*

On KASYAPA visiting Ceylon, he found it called Madá-dwipa ; and the capital Wisala, situated on the west of the Mahá-Mewuna gardens, was the residence of the king JAYANTA. The people were divided into two hostile parties, the one headed by the next heir to the throne, SAMIDDHO ; the other by the king's ministers : the armies had approached each other, and were only prevented from engaging by a dreadful conflict of the elements, accompanied by darkness, and succeeded by showers of fiery sparks. KASYAPA at this time descended from the peak, which was then called Subhakuta, and having succeeded in reconciling the contending parties, was acknowledged as a Buddha, and the Mah-Mewuna gardens were offered to him by the name of Sagara gardens. From Brahmadata of the Okaká† race, king of Baranas‡, he procured a branch of the Nigródha tree, which was accompanied by numerous priests and priestesses ; and was planted in the consecrated ground of Sagara, by the king JAYANTA, with the ceremonies which had been performed on such occasions by former kings. KASYAPA after converting the people, and visiting the places hallowed by the presence of former Buddhas, bestowed as a relic to his followers, the bathing cloth which he had used ; then giving charge over the 500 principal priestesses to the chief of them SUDHAMMA ; and over 1000 priests placing SARWAMANDA to maintain religion, he departed from the island to return to Baranas. Regard-

\* SOBHANNA.

† Okaka, same as Ikshwaka.

‡ Benares.

ing the date which I have assigned to the commencement of KASYAPA'S ministry :—

In a fragment of a poem which has the appearance of having been rendered into Cingalese from Sanscrit, called the Leechawee history, BRAHMADATTA, king of Baranas, is mentioned, and that Buddha was then residing in that city. The date is given in round numbers 2000 years after the commencement of the Kali yuga, which corresponds with .....	B. C. 1101
Padmakarpa, a Lama of Bhotan, fixes the date,.....	1058
The Chinese place the birth of Buddha*, .....	1036
M. Bailly*, .....	1031
Matonan Sin, a Chinese Historian†, .....	1027
De Guignes, from Mongolian records*, .....	1027
Japanese Encyclopedia fixes his birth, .....	1027
Ditto ditto his death, .....	960
Inscription at Buddha Gya*, .....	1014
Mongol Chronology of Pallas, .....	991
Cassiano by the calculations of the Tihetians appeared‡, .....	959
Ditto ditto died, .....	950
Giorgi, death of Buddha,.....	959
La mort de Boudha, on plutot de Shakyamuni le premier de Boudhas, est placée par un monument d'une authenticité incontestable, L'Encyclopedie Japonaise, en 950 avant notri ére§, .....	950

From these concurring dates, I am inclined to believe, that the death of KASYAPA BUDDHA occurred about B. C. 950, and the earlier dates given above, are either that of his birth or of his having become a Buddha.

#### Of GAUTAMA,

*The fourth Buddha in the present dispensation—Became Buddha, B. C. 588; died, B. C. 543.*

B. C. 543 is the era of GAUTAMA BUDDHA, and generally used in the religious and historical works of Ceylon.

It is this GAUTAMA whose moral doctrines are recognised as the rule of conduct; whose name is still invoked as the present Buddha by the Cingalese; and the existing records of whose life and ministry are so minute and credible, that they may fairly claim to be admitted into genuine history. The following are a few of the most remarkable events of his life, particularly as connected with Ceylon.

\* From Sir WILLIAM JONES'S Chronology of the Hindus.

† PRINSEP'S Chronological Tables.

‡ WILFORD'S Chronological list of the kings of Maghada.

§ MESSRS. BOURNOUF et LASSEN.

Prince **SIDDHARTA**, the son of king **SUDDHODANA**, by one of his queens **MÁYÁ**, was born at **Kapilawasta** or **Kumbúlwatpura**, a town of Central India\* ; at 16 years of age he was married to the princess **YASODARÁ** (called also **SUBHADDAKACHCHÁNA**), and when 29 years of age his wife brought him a son (who was called **RAHULA**, and afterwards became a priest). On the same day that his son was born, **SIDDHARTA** forsook his family and country, and commenced a life of penance and meditation, which he continued for six years in the forest of **Oorawelle** ; during this period existing solely by charity, and feeding on wild fruits. He fasted for 49 days, and after a severe struggle having finally overcome **MARYA** and his attendant host of demons†, became a **Buddha** by the name of **GAUTAMA**.

**GAUTAMA BUDDHA** proceeded to commence his ministry, and first expounded his doctrines at the grove called **Isipataná** in the neighbourhood of the city of **Baranas**. In the ninth month after he became **Buddha**, **GAUTAMA** arrived at the town of **Maháwelligam‡** the capital of the **Yakshas** in **Ceylon**, and which then covered a space twelve miles in length and eight in breadth on the banks of the **Mahawelliganga**. The majority of the **Yakshas** appear to have been converted, and to have driven those who adhered to their ancient superstitions into an island called **Yakgiri**. Tradition places this island to the south-east of **Ceylon**, and the legends which are preserved (on that coast) of sunken cities, may refer to some territory, of which the **Bass rocks** are all that now remain.

A portion of the hair of the **Buddha** was enclosed in a golden casket, over which a **Dágoba** was built at **Myungana§** in **Mahawelligam**, and this relic is said to have prevented the return of the **Yakshas||** (devils) whom **Buddha** had expelled : i. e. the worship he had superseded.

\* *Madhya-désia.*

† It might be translated overcame death and deadly sin ; for (*māra*) and (*mara*) signifies death, destroying, lust ; also a name of **KAMA**, god of love. **CLOUGH**'s Cingalese Dictionary.

‡ Where **Myungana** now stands in **Beentinne**.

§ **Myungana** is still a sacred place of pilgrimage near the village of **Beentinne** ; the **Dágoba** originally built by the chief of the converted **Yakshas**, was afterwards enriched by the addition of the **Griwa** (neck bone) relic, and enlarged to the height of twelve cubits ; it was increased by the king **CHULA BHYA** to thirty cubits, and **Dútúgaimúnú**, between 164 B. C. and 140, raised it to the height of niuety cubits.

|| The superstitions of the **Yakshas** had again become general in the time of **PANDUKABHYA** (100 years after **Buddha**), and continued to prevail until B. C. 307.

The second visit of GAUTAMA BUDDHA to Ceylon was B. C. 581 ; on which occasion he reconciled two rival princes of the Nágás, CHULODRA and MAHODRA, who had been carrying on a destructive war. These princes were near relations, and their capitals of Kellania\* and Wadenawágalla† were situated in that part of the western coast of Ceylon which was then called Nágá-diwinia. On the termination of their feud, the throne for which they had contended, was made an offering to the Buddha, and enshrined by the Nágás in the Dágobah of Kellania‡ to be worshipped as a memorial of their teacher.

GAUTAMA BUDDHA a third time came to Ceylon B. C. 577, and having revisited Kellania, from thence proceeded to Samanella (Adam's peak), Diganakhya in Ruhunu, the eight places at Anuraadhapura, and all others which had been sanctified by former Buddhas ; then took his final departure from the island, and proceeded to his principal residence in the temple of Jaitawanarama in Saewatnuwara§ of Magadha. GAUTAMA BUDDHA continued to be indefatigable in publishing his doctrines, and to be eminently successful in increasing his followers, and at last died placidly at a short distance from the town of Kusináránuwara in Malwa, in the 81st year of his age, and B. C. 543.

### Of Maitrí,

THE EXPECTED BUDDHA, WHOSE ADVENT IS FORETOLD BY BUDDHISTS.

Buddhists believe that to complete the predestined number of the Buddhas, allotted for the *Mahá Bhadra Kalpa*, and to renovate the faith of a degenerating race, MAITRI BUDDHA will be born of WIHARE DEWI, who in her last transmigration was the daughter of KELLANIA TISSA RA'JA, and who about B. C. 220 became queen of Mágam||, and wife of KAWANTISSA RÁJA.

The emblematic tree which will be selected by MAITRI' BUDDHA, and become sacred from the time of his appearance until the end of this Kalpa, it is predicted will be the Nágaha or iron-wood tree.

\* Kellania, four miles from Colomba.

† Wadenawágalla in the Swinkorles.

‡ This Dágoba still exists.

§ Buddha Gya is probably Saewatnuwara, and contains amidst its shapeless ruins the remains of GAUTAMA'S residence ; as well as the wreck of those splendid temples which were built to commemorate his worth, or cover his relics.

|| The ruins of the city of Mágam, extend over a considerable space, and include several large Dágobas ruined and overgrown with jungle ; they lie on the left bank of the Menick Gauga, and between Katragama and Hambantotti ; from the latter place to Mágam is fourteen miles.

II.—*Memoir of a Hindu Colony in Ancient Armenia.* By JOHANNES AVDALL, Esq., M. A. S.

A singular account of a certain colony of Hindus, that emigrated from India into Armenia, is recorded in the historical work of ZENOBIUS, a Syrian Bishop and primate of the convent called Innaknian\*, who flourished in Armenia in the beginning of the third century. The narrative was evidently written in Syriac, and intended for the Syrian nation, though the writer seems to have subsequently re-written the same in the Armenian language, but with Syrian characters; the letters of our alphabet having been invented a century posterior to that period. By a very long residence in Armenia, ZENOBIUS was successfully enabled to acquire a perfect knowledge of the Armenian language, in which his history has been handed down to us. This interesting work was published in Venice, in the year 1832, being carefully collated with five manuscript copies, written in different periods.

I shall, in the present memoir, first give a description of this Hindu colony from the narrative of ZENOBIUS, and then an account of the religious wars waged between them and the first propagators of Christianity in Armenia.

“ This people had a most extraordinary appearance. They were black, long-haired, ugly and unpleasant to the sight. They claimed their origin from the Hindus. The story of the idols, worshipped by them in this place, is simply this: DEMETR† and KEISANEY‡ were brothers, and both Indian princes. They were found guilty of a plot formed against their king, DINASKEY§, who sent troops after them, with instructions either to put them to death or to banish them from the country. The felons, having narrowly escaped the pursuit, took a shelter in the dominions of the king VALARSACES, who bestowed on them the principality of the country of Taron. Here a city was founded by the emigrants, who called it Vishap or Dragon. Having

\* ԻՆՆԱԿՆԻԱՆ Իննակնիան, literally meaning, nine springs or fountains, which existed in the place.

† ԳԵՄԵՏՐ ԵՄԵՏՐ DEMETR is a Greek name, probably borrowed by the Hindus from the Bactrians or the descendants of the troops of ALEXANDER the Great.

‡ ԿԵՍԱՆԵՅ KEISANEY is derived from ԿԵՍ ԿԵՍ Keis, which both, in Armenian and Persian, signifies a ringlet or a curling forelock. Thus we have in RICHARDSON كيسوسى عذير امينز locks fragrant as amber.

§ ԳԻՆՍԿԵՅ DINESKEY is the name of the Indian king mentioned in the Armenian text, for which I have in vain searched in all old historical records and chronological tables of the dynasties of ancient India.

come to Ashtishat\*, they raised idols there in the name of those they worshipped in India. Fifteen years after their settlement in the country, both of the brothers were put to death by the king, for what fault I do not know. He conferred the principality on their three sons, named KUAR, MEGHTI and HORAIN. The first built a village, and called it after his own name *Kuars*. The second founded a village on the plain, and called it after his own name *Meghti*. The third also built a village in the province of Palunies, and gave it the appellation of *Horains*.

After a certain space of time, KUAR, MEGHTI and HORAIN, of one accord, resolved on changing their abode. They sojourned on the mountain called Kárki, which to a delightful temperature added a fine and picturesque appearance. It abounded in game, herbs, wood, and all that is adapted for the comfort and convenience of man. Here they raised edifices, where they set up two idols, respectively dedicated to KEISANEY and DEMETR, in honor of whom attendants were appointed out of their own race. KEISANEY had long flowing hairs, in imitation of which his priests allowed the hairs of their heads to grow, which custom was afterwards prohibited by authority. This class of people, on being converted to Christianity, were not deeply rooted in their faith. They durst not, however, openly profess the religion of their pagan ancestors. They continued, therefore, dissemblingly to allow their children to wear plaited hairs on the crown of their heads, in remembrance of their idolatrous abominations."

The description of this idolatrous colony is entirely accordant with the colour, appearance, manners and religion of the present Hindus. The cause of their emigration from India is distinctly stated by ZENOBIUS, but through what route or in what period they found their way into Armenia, it is very difficult to determine. It is, however, clearly evident that they had formed a permanent settlement in our country prior to the commencement of the Christian era. VALARSACES, under whose government they found protection, was grandson of ARSACES, the Parthian, and brother of ARSACES the Great, by whom he was appointed king over Armenia, *Anno Mundi* 3852, or a century and a half before Christ. I shall now proceed to give a translation of ZENOBIUS's narrative of the religious wars of this Hindu people with the first Christian converts of Armenia.

\* **ԱՇՏԻՇԱՏ** *Ashtishat* was a city in Armenia Major. It was so called from **ԱՇՏ** *sacrifice*, and **ՇԱՏ** *many*; for innumerable sacrifices were offered there to the gods and goddesses of Armenia. It might, perhaps, be well compared to Jagannáth or Káli Ghát of this country.

“Having taken our departure from Thordan, we intended to proceed to Carin and Harc. St. GREGORY was informed by some of the princes of the existence of two idolatrous temples in the province of Taron, the inhabitants of which offered sacrifices to the devil. Hereupon, our course was changed to the place where these temples stood, with a view to effect their demolition. Having arrived in the country of Palunies, in the extensive village called Keisaney, near the town of Kuars, we met there some of the heathen priests. Having ascertained from the prince of Hashtens that on the following day the great images of KEISANEY and DEMETR were to be levelled to the ground, they repaired to the temples in the dead of the night, and removed from thence all the treasure into subterraneous places. Intimation of the impending danger was forthwith sent to the heathen priests in Ashtishat, who were earnestly urged to collect warriors, and quietly join them on the morrow in order to take an active part in the battle, which was to be fought by the great KEISANEY with the apostate princes. In like manner the inhabitants of Kuars were also instigated to lie in ambush in the hedges of gardens, and ruffians were sent to waylay the Christians in the forests. The head priest, called ARZAN\*, and his son DEMETR, took the command of the troops stationed at Kuarstan, and halted there, awaiting the arrival of reinforcements from other quarters. On the following day they made a descent to the skirts of the mountain, in order to indulge in marauding and pillage.

“St. GREGORY, accompanied by the prince of Arzrunies†, the prince of Anzevazies, and the prince of the house of Angl‡, and followed by a small number of troops amounting to about three hundred, ascended the mountain in the third§ hour of the day, where ARZAN lay in ambush. They had not the least knowledge of the position of the enemy, and never expected to meet him there. On a near approach to

\* ԱՐԶԱՆ, *Arzan*, literally means in Armenian, statue, image or idol.

† ԱՐԾՐՈՒՆԻՅԻՔ *Arzrunies* was the title of a satrapy in Armenia, and signifies *eagle-bearers*. The Satraps known by this appellation, used to carry eagles before the Arsacian king VALARSACES and his successors.

‡ ԱՆԳԵՂՏՈՒՆ *Angltan*, the genitive of which is ԱՆԳԵՂՏԱՆ *Angltan*, means the house of *Angl* ԱՆԳՂ, or vulture. This was a title of distinction, conferred on a noble family in Armenia, compared to that bird of prey, on account of the ugliness and deformity of their features.

§ This is to be understood according to the mode of the computation of time, obtaining in eastern countries. The hour mentioned here, corresponds with nine o'clock in the morning. Thus we have in the Acts: “For these are not drunken, as ye suppose, seeing it is *but* the third hour of the day.”

the acclivity of the mountain, ARZAN and DEMETR rushed out from the ambuscade, and on a signal being given, the trumpets of war were sounded, and a furious attack was instantly commenced. This was enough to alarm the Christian princes, whose horses took fright from the sound of the trumpets, and began to neigh and plunge, and create the greatest confusion. Hereupon, the prince of the house of Angl raised his voice and cried, 'Prince of the Seunies, step forward and see whether these are the troops of the prince of the north.' The necessary inquiries were made, but no satisfactory information was obtained. The prince of the Seunies returned and insisted on the removal of St. GREGORY and his companions to a secure place, lest, he feared, they might be made prisoners by the enemy, which event would surely excite the anger of the king, and bring the Christian princes into disgrace. 'Send then,' added he, 'a trusty person to recall our troops, for the number of the enemy is alarmingly great, and innumerable flags are seen waving in the air.'

"No sooner was the warning given, than the prince of the house of Angl, gave charge of St. GREGORY to the prince of the Mocks, with instructions to convey him to the castle of Olkan, and there to await the issue of the battle. Information of this was immediately sent to the troops. The prince of the Mocks, accompanied by St. GREGORY, descended the declivity of the mountain, wishing to repair to Kuars. They met with great resistance on the way from a party of the enemy, but by the help of Providence, at last succeeded in effecting their escape. We were, however, pursued by a number of villagers, but being mounted on swift horses, took refuge in the castle of Olkan, where we met with a timely assistance and protection. The villagers having proceeded to the town of Kuars, informed its people of the place of our retreat. The castle of Olkan was, therefore, instantly besieged. We were thus seized with apprehensions for our safety, and forthwith dispatched a messenger with letters to the prince of the house of Angl, conveying him information of the perilous situation in which we were then placed. He immediately sent us four thousand troops, all selected from the army, and furnished with swords, who crossed the river and reached their destination on the following day. After a siege of three days, they took possession of the town of Kuars, and reduced its walls to ruins, and razed all its houses to the ground. The people of the place, that had escaped the stroke of the sword, were conducted to Meghti.

"The Christian princes being apprised of this, ascended the mountain, and descried ARZAN in ambuscade with four hundred men, more or less. They immediately made a sortie on the enemy, and put



ARZAN to flight. The Armenian troops having heard the din of battle, immediately crowded to the mountain. Upon this, ARZAN began to rally, and heap on the Armenian princes torrents of abuse. 'Step forward, said he, ' ye base apostates, who disbelieve the gods of your ancestors, and are opposed to the glorious KEISANEY. Do you not know that it is KEISANEY that wages war with you this day, and will subdue you under our hands, and inflict you with blindness and death?' The prince of Arzrunies, having rushed forward, said, 'Thou worthless bully, if you fight on behalf of your gods, you deceive yourselves; if you fight on behalf of your country, you only display your own folly. Behold the prince of the house of Angl, and the prince of the house of Seunies, and the other nobles, whom you know too well.' To which DEMETR, the son of ARZAN, thus replied: 'Listen unto us, ye Armenian princes! it is now nearly forty years since we are engaged in the service of the mighty gods. We have an experience of their powers, and are assured that they fight with the enemies of their servants. We are not, however, able to cope with you in battle. This is the habitation of the king of Armenia, and ye are his nobles. But, be it known to you all, that though it is out of our power to conquer you, yet we prefer to die a glorious death to-day in upholding the honor of our gods, than to live and see their temples polluted by you. Death is, therefore, more welcome to us than life.' Having spoken this, DEMETR challenged the prince of the house of Angl to a single battle.

"The prince of the house of Angl having accepted the challenge, made an instantaneous attack on ARZAN, who inflicted a wound with his spear on one of the thighs of his antagonist, and was on the point of levelling him to the ground. The prince of the house of Angl having, by an adroit movement, regained his position, thus addressed the enemy: 'Know thou this, ARZAN! that this spot must receive the appellation, by which you are called; for here thou art destined to fall, and be fixed like a statue!' No sooner was this spoken, than he lifted up his arm, and aimed a stroke of his sword on his right shoulder, by which his head, together with his left shoulder and leg, was instantly severed from the body. Thus fell ARZAN, and was fixed like a statue on the ground. He was buried on the very spot, which to this day is called, after his name, *Arzan*.

"Hereupon the heathen army was immediately swelled by re-inforcements sent by the priests from the city of Vishap. The people of Par-tukh, and Meghti and Astaghon, also crowded to the spot of battle,

and the number of the army was thus increased to five thousand four hundred and fifty.

“ Their arrival in the summit of the mountain, created great noise and confusion in the ranks of the two armies. The heathen priests made a simultaneous attack on the Armenian troops, and by a vigorous pursuit after them made them descend the declivity of the mountain and fly towards the village. The villagers, who lay in ambush, having encountered our troops, stopped their progress, and these being thus hemmed in on both sides, were put to the sword. But the prince of the house of Angl having passed through the ranks of the heathen priests, directed his course towards the mountain, where several men were kept in reserve, and caused great mischief by flinging stones at our horses. DEMETR having observed the prince of the house of Angl ascend the mountain, left the rest below and pursued his steps. He was immediately followed by his troops, all mounted on horses.

“ The battle was resumed on the top of the mountain. Our army waited in expectation of further re-inforcements. The whole of our troops had not yet assembled on the spot, of whom four thousand remained in charge of the prisoners in Meghti, and three thousand proceeded to Basain and Harc. The rest were given to pillage and marauding in the field. Ere decisive blows were exchanged, the approach of night put a stop to further operations. Both armies were, therefore, obliged to encamp on the spot and wait the dawn of the morn. On the following day the expected Armenian troops made their appearance; and a re-inforcement of about five hundred men, from the city of Tirakatar, came to the assistance of the heathen priests. The number of both armies were swelled in this manner. The heathens amounted to six thousand nine hundred and forty-six men, while the Armenians were only five thousand and eighty in all. The trumpets were sounded, and the battle commenced on both sides. In the beginning the Armenians proved victorious over the heathens. But the prince of Hashtens, formerly attached to the party of DEMETR, but now commanding the Armenian army, deserted his post, and joined the ranks of the heathen priests with seven hundred men. The Armenians met with a formidable antagonist in this deserter. Our troops were seized with fear and dismay at the desertion of this brave warrior, whose superiority in military operations was generally acknowledged, and whose extraordinary prowess had rendered him an object of respect and admiration with all the Armenian princes. The rebel attacked our army with the greatest fury, and was flushed with the success of his arms. Hereupon the prince of the Seunies

cried to him in a contemptuous voice, 'Thou whelp of a wolf\* ! thou beganst to display the disposition of thy father, and feel a delight in feasting upon carrion.' The rebel replied in a bold and reproachful manner, 'Thou vainglorious eagle† ! thou only piquest thyself on the power of thy wings ; but if thou ever fallest in one of my traps, thou shalt soon feel the weight of my arms.' The prince of the Seunies could not brook this taunt, but furiously rushing on him, directed the axe which he held in his hand to his helmet, and having driven him to some distance from his troops, pursued him to the eastward of the mountain. Here, opposite to the convent of Innaknian, he brought him to the ground by a violent shove from the horse ; and having himself alighted, instantly severed his head from the body, which he precipitated headlong from the mountain. 'Now,' said he, 'let vultures behold you, and know that the eagle has killed the hare.' Immediately after this, the prince of the Seunies returned to the army ; and the place where the prince of Hashtens fell, is to this day called by the appellation of the *Eagles*.

"The Armenians were emboldened by this success, and the prince of Arzrunies attacked the head priest of Ashtishat, called *METAKES*, whom he dragged to the summit of the mountain, commanding a view of the battle. *METAKES* here made a violent resistance, and inflicted a wound on one of the thighs of his pursuer. The latter, burning with rage and a spirit of revenge, levelled a stroke of his scymetar on his neck, which he cut off from the body. He threw down the headless trunk, and the spot where the deed was committed, received the appellation of *Metsakol*.

"The prince of † *Arges* seeing this, consulted his safety in flight, and secured himself in a place of concealment. The prince of Arzrunies, seemingly not noticing this, gently approached the fugitive, and made a sudden and unexpected attack on him. The wretch fled into the forest, where the sharp point of one of the branches of a tree, having passed through his breast, hastened his fall and dissolution. The conqueror returned with the horse of the dead, and the spot was called the vale of *Arges*.

"Immediately after his return he found *DEMETR* and the prince of

\* ԳԱՅԼԱԿՈՐԻՒՆ *Gailakoreün*, literally, means a young wolf, or the cub of a wolf.

† ԱՅ ԱՐԾՈՒՄՅ ՁԱԳ is an abusive mode of expression in Armenian, similar to that of ԱՅ ՇԱՆ ՁԱԳ *thou son of a dog*.

‡ ԻՇԽԱՆՆ ԱՐՉՈՒՅ *Prince of Arges* was another title of nobility in Armenia, literally signifying the *prince of the bears*.

the house of Angl wrestling together with the greatest fury. Having made a violent rush, he chopped off the right shoulder of the former, and threw it on the ground. The severed head he carried away in his knapsack. The victorious Armenians put the heathen army to the sword, and the number of the killed amounted to one thousand and thirty-eight. The rest were made prisoners, and stripped of all they were possessed of. The son of the prince of the Mocks fell in the battle by the hand of DEMETR, and this melancholy event spread universal sorrow among the Armenian troops.

“The fall of DEMETR was made a signal of cessation from slaughter, and the trumpet of peace was sounded by order of the prince of the Seunies. The two armies immediately desisted from the continuance of carnage. The surviving heathen priests gladly availed themselves of the occasion, by soliciting the Armenian princes to sanction the interment of their dead. Their request was readily granted. The killed on both sides were collected in heaps, and buried in pits dug for the purpose. Monuments were raised on their graves, bearing the following inscription, in Syrian, Hellenic, and Ismaelitish characters.

ԱՌԱՂԻՆ ՊԱՏԵՐԱԶՐ ՈՐ ԵՂԵՒ ՅՈՅԺ ՍԱՍՏԻԿ  
 ՊԱՏԵՐԱԶՐԻՆ ԳԼԽԱՒՈՐ ԱՐՁԱՆ ՔՐՄԱՊԵՏՆ  
 ՈՐ ԿԱՅ ԱՅՈՐ Դ ԹԱՂՄԱՆ  
 ԵՒ ԸՆԴ ՆՄԱ ԱՐՈ ՏԱԶԱՐ ԵՐԵՍՈՒՆ ԵՒ ՈՒԹ  
 ԵՒ ԶԱՅՈ ՊԱՏԵՐԱԶՐ ԱՐԱՐԱՔ ՎԱՍՆ ԳԻՍԱՆԵԱՅ ԿՈՅՅ  
 ԵՒ ՎԱՍՆ ՔՐԻՍՏՈՍԻ:

“THE FIRST BATTLE FOUGHT VERY FIERCELY,  
 THE CHIEF COMMANDER IN THE BATTLE WAS ARZAN THE HEAD PRIEST,  
 WHO LIES HERE INTERRED,  
 AND WITH HIM ONE THOUSAND AND THIRTY-EIGHT MEN.  
 WE WAGED THIS WAR FOR THE IDOL KEISANEV  
 AND ON BEHALF OF CHRIST.”

Here concludes the narrative of the religious war. Our historian, it appears, was an eye-witness to the scene he describes. This victory was celebrated by the Armenians with the greatest pomp and merriment. The heathen temples were razed to the ground, and the images of KEISANEV and DEMETR were broken to pieces. They were both made of brass. The length of the former was fifteen feet, and that of the latter twelve feet. The priests of the idols, with tears in their eyes, intreated the victors to put themselves to death, rather than destroy their mighty KEISANEV. Six of the priests were killed on the spot, for the resistance they offered to the Armenians. On the restoration of peace, the prince of the Seunies proceeded

to the village of Kuars, and succeeded in persuading its inhabitants to forsake idolatry and embrace the Christian religion. Being duly prepared for baptism, they were conducted to the valley of Ayzasan, where they were baptised by St. GREGORY, and thus admitted into the fellowship of the Church of Christ. "The number of persons," says ZENOBIUS, "christened on the first of Navasard\*, including men and children, amounted to five thousand and fifty." Females, it appears, were excluded from this number, and baptised on another day, appointed for the occasion. Some of the heathen priests and their families, however, tenaciously adhered to the idolatrous practices of their forefathers. The paternal persuasions of St. GREGORY had no effect upon their minds. "Remember this well," said they to the Armenian princes, "that if we live, we will make you a recompense for your treatment; but, if we die, the gods will wreck their vengeance on you all on our behalf!" Hereupon the prince of the house of Angl ordered them to be taken to the city of Phaitacaran†, where they were imprisoned and their heads shaved. The number of these prisoners amounted to four hundred.

It is impossible to know what was the number of this Hindu colony at the time of their emigration from India into Armenia. We are, however, certain, that from the date of their first settlement in the Armenian province of Taron to the day of the memorable battle, a period of about four hundred and fifty years, they must have considerably increased and multiplied, and thus formed a part of the population of the country. No vestiges of this Hindu race can, at present, be traced in Armenia, save the record of their exploits, handed down to us in the narrative of ZENOBIUS‡.

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\* ՆԱԻԱՍԱՐԴ *Navasard* is one of the ancient Armenian months, corresponding with the month of August. An account of these months is given by M. BROSSET in the *Nouveau Journal Asiatique* for December 1832, page 526.

† ՓԱՅՏԱԿԱՐԱՆ *Phaitacaran* was the capital of an extensive province of that name, where SANATRUK, the great Armenian Satrap, proclaimed himself king immediately after the death of TIRIDATES. It is situated on the confluence of the rivers Araxes and Kur.

‡ Our historian was also called by the appellation of ԳԼԱԿ *Glak*, whom St. GREGORY appointed primate of the convent of ԻՆՆԱԿԻՆԵԱՆ *Innakniau*, which afterwards received the appellation of ԳԼԱԿ *Glak*.

III.—*Facsimiles of various Ancient Inscriptions.*

Fearing that many of the inscriptions with copies of which I have been favored by my most faithful correspondents, may be mislaid or lost sight of unless committed to print, I am led to anticipate the full explanation which many of them doubtless might receive from those who have learning, industry, and will, to decypher them, but want the necessary leisure at present to undertake the task,—by transferring them to the stone at once, and recording them in the Journal along with the notes that accompanied them, where they may be at all times available when accidental discovery may open a clue to their interpretation. Some indeed are of a promising nature, and have been in a great measure made out, while others have been alluded to in former Nos. of the Journal or in the proceedings of the Society, to which reference alone is all that can be offered. I must proceed in the inverse order of the plates, having numbered them without consideration.

*Konkan Inscription.*

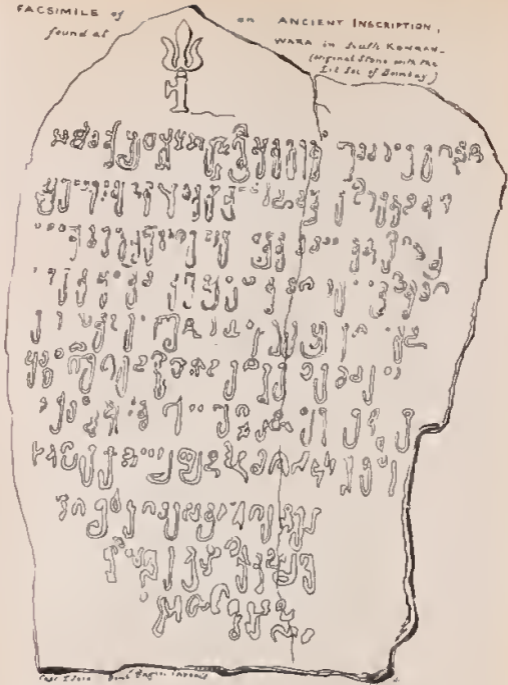
No. I. of Plate X. is the reduced *facsimile* of an inscription on a slab of stone from *Wara* in South Konkan, presented to the Bombay Literary Society by Captain T. JERVIS, of the Engineers, by whom it was supposed to be in the *Cufic* character. It was communicated to the Bengal Society by our associate the Rev. Mr. BATEMAN, in January, (see p. 58.)

Those who have noticed the series of ancient Hindu coins depicted in the November and December Nos. of the Journal of last year, will doubtless recognize in the present inscription the peculiar form of the *Nágarí* character on the Saurashtra group of coins. The *trisul* surmounting the inscription would indeed have been sufficient to negative the possibility of its *Cufic* origin. From the position of this symbol, which we must suppose to have been in the centre of the slab, it is probable that a third of the inscription on the left hand is broken off, which alone would prevent the possibility of coming at the purport of it. This is a pity on more than one account; for the initial invocation might have afforded a clue to a few of the letters, to the language, and to the sect of Hindus that erected the monument; although the latter may be considered to be sufficiently established by the symbol of Siva surmounting the legend.

The chief peculiarity of this form of alphabet is, that the tails of the letters are lengthened and turned up backwards in a loop. Abstracting this portion, the essential part of the letter resembles the Gujeráti type of Mr. WATHEN's inscriptions, (See vol. iv. p. 477.) The vowels also belong to the same type: the *y* is subjoined to the *s* and other

FACSIMILE of  
found at

an ANCIENT INSCRIPTION,  
WARA in South KORAAN.  
(original Stone with the  
Lit. Soc. of Bombay)



Inscription at the Damatha Cavern near Maulanyeng, Moulmein

၁။ သက္ကရာဇ် ၅၀၀ ခု ဝါ ၁၂ ရက်နေ့ ဝါ ၁၂ ရက်နေ့  
 ၂။ သက္ကရာဇ် ၅၀၀ ခု ဝါ ၁၂ ရက်နေ့ ဝါ ၁၂ ရက်နေ့  
 ၃။ သက္ကရာဇ် ၅၀၀ ခု ဝါ ၁၂ ရက်နေ့ ဝါ ၁၂ ရက်နေ့  
 ၄။ သက္ကရာဇ် ၅၀၀ ခု ဝါ ၁၂ ရက်နေ့ ဝါ ၁၂ ရက်နေ့  
 ၅။ သက္ကရာဇ် ၅၀၀ ခု ဝါ ၁၂ ရက်နေ့ ဝါ ၁၂ ရက်နေ့  
 ၆။ သက္ကရာဇ် ၅၀၀ ခု ဝါ ၁၂ ရက်နေ့ ဝါ ၁၂ ရက်နေ့  
 ၇။ သက္ကရာဇ် ၅၀၀ ခု ဝါ ၁၂ ရက်နေ့ ဝါ ၁၂ ရက်နေ့  
 ၈။ သက္ကရာဇ် ၅၀၀ ခု ဝါ ၁၂ ရက်နေ့ ဝါ ၁၂ ရက်နေ့  
 ၉။ သက္ကရာဇ် ၅၀၀ ခု ဝါ ၁၂ ရက်နေ့ ဝါ ၁၂ ရက်နေ့  
 ၁၀။ သက္ကရာဇ် ၅၀၀ ခု ဝါ ၁၂ ရက်နေ့ ဝါ ၁၂ ရက်နေ့  
 ၁၁။ သက္ကရာဇ် ၅၀၀ ခု ဝါ ၁၂ ရက်နေ့ ဝါ ၁၂ ရက်နေ့  
 ၁၂။ သက္ကရာဇ် ၅၀၀ ခု ဝါ ၁၂ ရက်နေ့ ဝါ ၁၂ ရက်နေ့  
 ၁၃။ သက္ကရာဇ် ၅၀၀ ခု ဝါ ၁၂ ရက်နေ့ ဝါ ၁၂ ရက်နေ့  
 ၁၄။ သက္ကရာဇ် ၅၀၀ ခု ဝါ ၁၂ ရက်နေ့ ဝါ ၁၂ ရက်နေ့  
 ၁၅။ သက္ကရာဇ် ၅၀၀ ခု ဝါ ၁၂ ရက်နေ့ ဝါ ၁၂ ရက်နေ့





consonants in the same manner; and, in short, there can be little doubt that both are of one family, and that the monuments bearing these characters may boast of as high an antiquity as has been allowed to the coins, (Pl. XLIX. vol. iv. page 684,) of the Saurashtra group. Some of these, it will be remembered, have a trilingual symbol, in common with the oldest form of coins dug up near Seháranpur; and the head on their obverse is supposed to be imitated from the Greek coins of Kodos, probably a Parthian successor of some of the petty Greek chieftains on the Indus. Other coins have a trident on the reverse.

In the first and third lines there appear to be numerals, which may be read १११० and ११००, 1110 and 1100: the figure *one* being rather like the Bengálí than the Nágari form. These however can hardly refer in any known era to the period assigned to the coins.

#### *Moulmein Inscription.*

*No. II. of the same plate*, is the inscription in the *Barma* character and *Talain* language found in the Damatha Cavern near Moulmein by Captain W. FOLEY, and mentioned in his paper, (page 274 of the preceding No.) I have appended a translation by RATNA PAULA in a postscript to the same paper, but nothing can be made of such an enigmatical jumble of figures.

#### *Chunar Inscription.*

*No. I. of Plate IX.* is taken from a pencil sketch of a stone slab in the Fort of Chunar near Benares, by Lieut. A. CUNNINGHAM, Engineers.

This young officer, who during his short residence at Benares has brought so many facts and antiquities to light as to make me blush for my own inactive residence there, had some time previously sent me a Nágari transcript of the same inscription, in its present mutilated condition, written out by a Benares pandit, who also supplied the missing part of the text from a copy taken, he asserted, some years ago, before the surface of the stone had peeled away. An imperfect copy of the same, as it formerly existed, was also found among the Fort Adjutant's records at Chunar. On comparing the three, however, many discrepancies were perceived, and the position of the erasures was not marked in the pandit's transcript. I therefore again wrote to Lieut. CUNNINGHAM, who proceeded to the fort and took the copy himself from the stone, whence the present lithograph is made.

Having such abundant materials for making out what appeared a most simple inscription, I entrusted the whole to a young pandit, late of the English class in the Sanscrit College, to put together and translate. He made several alterations in the Benares pandit's readings,

and substituted what he considered would better fill up the gaps; the sense was, however, so completely jumbled by these *amendments*, that I was loth to trust the translation to print without first troubling our learned Vice-President, the Rev. Dr. MILL, to look it over: and it was fortunate I did so, as will be seen by the comment his valuable notes afford on the attempt of the Benares pandit! As for the Bengálí's version, it was so much worse as to be unworthy of notice.

I had first imagined that the SHAHAB UD-DIN, whose invasion and assault brings upon him the epithet of दुष्टात्मा (the wicked-minded and tyrannical *Yavana*,) must be the first Patán sovereign of that name, whose overthrow of Rája BANÁR of Benares in 1193, A. D., is circumstantially recorded in FERISHTA. The date, however, which corresponds with Thursday, the 5th August, 1333, A. D., falls in the reign of MUHAMMED SHAH; and Dr. MILL has succeeded in discovering the actual owner of the title *Shahab ud-din* referred to.

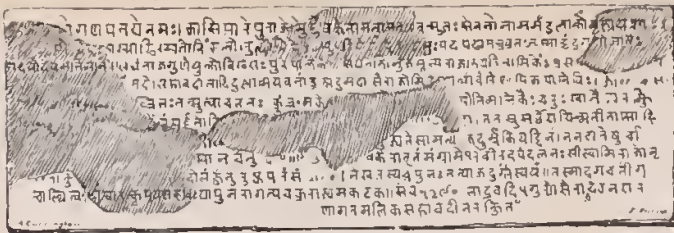
The inscription has some interest in a historical view, as supplying the names of three successive rajas of Benares in the 13th century, of which no clue is to be obtained from other sources. Neither local tradition nor history supply any information regarding the holy city subsequent to the overthrow of the fort by CUTB UD-DIN, until a cursory notice of it occurs as the site of an encampment, in BABER'S Memoirs.

Dr. MILL'S restoration of the text is as follows, placing the interpolations in smaller type. I have inserted his notes on the pandit's version, as affording an useful example of the caution necessary in such cases, and proving how utterly void of trust are the attempts of the pandits of the present day, unless they have to deal with one capable of understanding what they would foist upon the unsuspecting as faithful transcript and good sense.

Line on  
the stone. Verse.

\* ओं गणपतये नमः ।

- |   |      |   |
|---|------|---|
| 1 | I    | काशिपारे पुरा येऽभूद्देवको नाम नामतः ।<br>तत्सुतः सेवने नाम मण्डलार्को महायशः ॥         |
| 2 | II.* | सेऽधिपो यस्माद्विख्यातो विशालो भुवनाधिपैः ।<br>सुधीभिर्वेष्टितः शम्भोः पदपद्ममधुव्रतः ॥ |
| 3 | III. | तस्माच्चन्द्रगणो जातः *सदयो देवभक्तिमान् ।<br>सर्व्वराजगुरौर्युक्तो विश्वेशः पुरपालकः ॥ |
|   | IV.  | खामिराजोऽनुजस्तस्य राजा जयति धार्मिकः ।   |
| 4 |      | प्रस[न्नः सर्व्वभूतान]†* [शासनज्ञः सतां ]मुदे ॥   |
|   | V.   | सहाब्दीनादिदुष्टात्मयवनेन्द्रमहम्मदा !  |



2 INSCRIPTION FROM BĀRĀHĀT IN GARHWĀL

- 1 ७६ अ० ब्रह्मिष्ठे राजा योगा-निपुण इति ॥ ७६ अ० ब्रह्मिष्ठे राजा योगा-निपुण इति ॥
- 2 ५६ अ० ब्रह्मिष्ठे राजा योगा-निपुण इति ॥ ५६ अ० ब्रह्मिष्ठे राजा योगा-निपुण इति ॥
- 3 ५६ अ० ब्रह्मिष्ठे राजा योगा-निपुण इति ॥ ५६ अ० ब्रह्मिष्ठे राजा योगा-निपुण इति ॥

७६ अ० ब्रह्मिष्ठे राजा योगा-निपुण इति ॥  
 ५६ अ० ब्रह्मिष्ठे राजा योगा-निपुण इति ॥

3 Inscription on a Granite rock near Ishardo, in Little Tibet under a Base-relief of Buddha

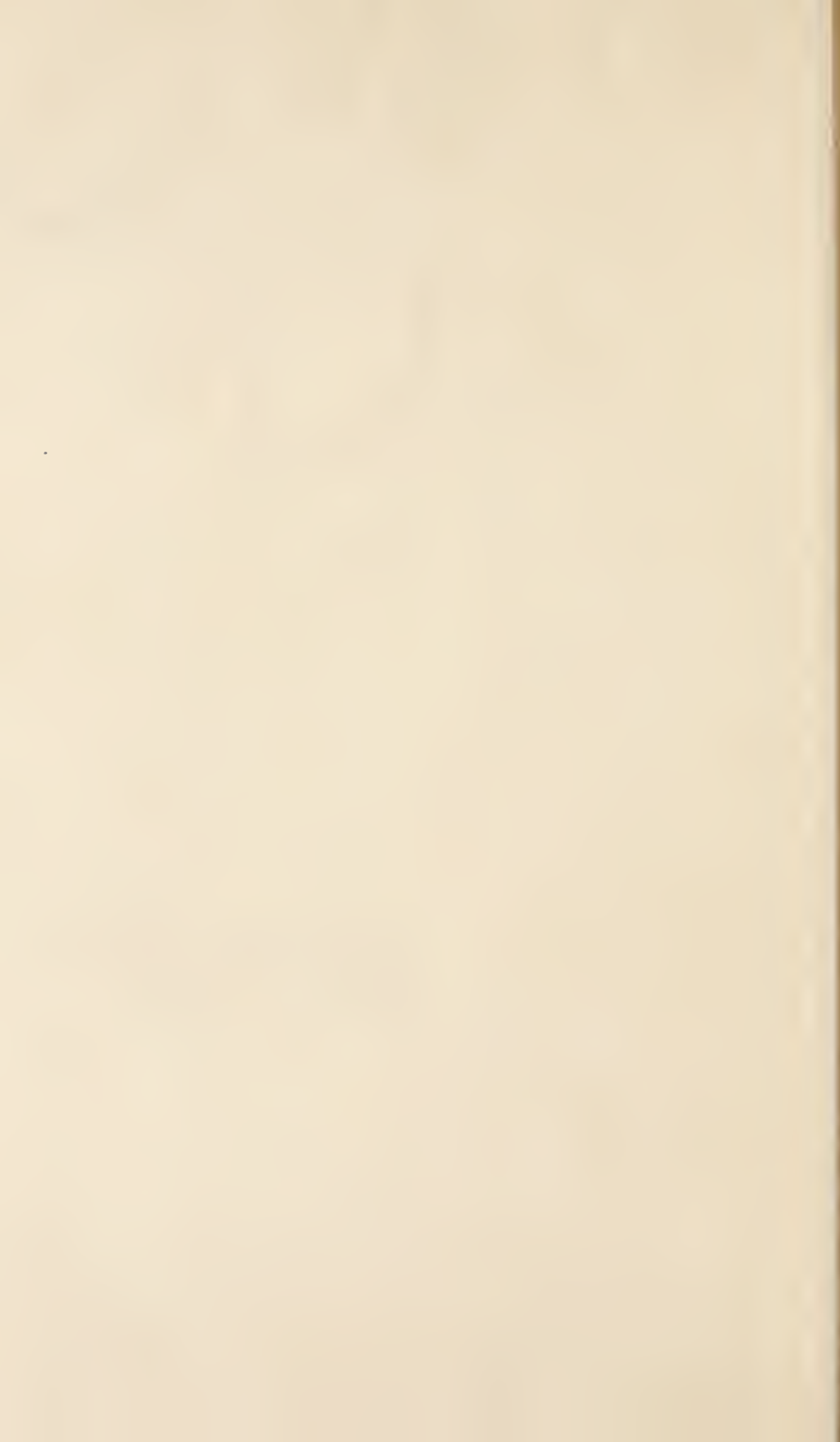
bha... (Two other inscriptions taken by Mr Vigne also in the Tibetan character are too much mutilated to be transcribed.)

4 Inscription on the entrance of a chamber containing an image of Buddha in the Caves of Ajanta

2 ७० ४४... (Faded inscription with arches below)

5 Facsimile of a doubtful name in the Bektari Inscription (see Pl VIII.)

५ अ० ब्रह्मिष्ठे राजा योगा-निपुण इति ॥



- सैराजो मि[लितोऽम]ात्यो वैरिणापि कृपानिधिः ॥  
 5 VI. गंगारोधसि\*[तेनैव नुन्ना सेनांपरो]र्वितः ।  
 तत् श्रुत्वा च ततः क्रुद्धमजे [घारिमवेन्नृपः ॥  
 VII. अतः सं] पीतिभिर्लोकैः चेरुः स्वामै [ च ]रक्षितं ।  
 6 \*स्वामिराजादयो दुर्ग वीराः] संमर्दतो द्वि[पां] ॥  
 VIII. ततस्तु सर्वे शयिनोऽतीतास्ता हि[\*भयोर्मयः ।  
 7 यवनानां तदा सेना तद्दुर्गं प्राविशच्छलात् ॥  
 IX. यस्मान्न]युज्यते सामात्यजद्दुर्गं कियद्दिनं ।  
 8 ननु दानेषु वैरि[\*भ्यो दत्तेष्वपि यथोचितं ॥  
 X. भूयः]स्नानवितुं [प्रच्छ त्पु रथं स स्ना]वकैरावृतं  
 संग्रामे परवीरदर्पदलनः श्रीस्वामिराजाद्द[पः ।  
 9 \*आक्रान्त्तारमवेक्ष्य हन्त शत]दोस्त्रं चं तुरुष्कं परं  
 संग्र[ामागम]नेखलस्य च पुनः तत्याज दुर्गं स्वयं ॥  
 10 XI. तस्माद्भगवतो ग\*त्वा स्थित्वा मत्वा च तत्कृपां ।  
 ईहया पुनरागत्य चक्रे राज्यमकंटकं ॥  
 संवत् १३६० भाद्रपदि ५ गुरौ सैराजदेवनशर  
 11 \*यागतमलिकसहाबदीनरक्षितं ॥

*Translation.*

Om ! Salutation to GANAPATI.

I. Of him who under the name of DE'VACA, reigned on the opposite coast to Kási (Benares), the son called SEVANA was as the sun in the firmament, greatly renowned.

II. That king being celebrated as illustrious by the sovereigns of the world, was ever surrounded by sages, ever devoted to SAMBHU [or SIVA], as the bee to the lotus.

III. Of him was CHANDRAGANA born, merciful, devout to the gods, endued with all kingly virtues, lord of all, guardian of the city, (Benares).

IV. His younger brother SVÁMI Rája excels as a religious king, gracious to all creatures, and skilfully exercising government, to the delight of good men.

V. By MUHAMMED\*, lord of the hostile Yavanas [Moghals]

\* This was MUHAMMED SHA'H, the third Emperor of Dehli of that name, who succeeded his father TUGHLEC SHA'H GHAYASH UD-DÍN, A. H. 725—eight years before the date of this inscription—celebrated for his frantic expedition to the

SHAHAB UD-DIN\* and the rest, though an enemy, was SAIRÁJA†, the treasure of benignity, employed as prime minister.

VI. (By him) from a (far) country (was an army sent to the bank of the) Ganges. (The king) on hearing of this, (believed) that an angry and invincible (enemy was approaching.)

VII. Upon this (SVÁMI RÁJA and other brave men), went with horses and men, and sound (of arms, &c.) to defend from the assaults of the (foe, their fort) [Chunar.]

VIII. Then did all the inhabitants sleep secure, for those (waves of terror) had passed by: (and then the army of YAVANAS entered their fort by surprise or stratagem.)

IX. And since pacification‡ was not expedient, he [SVÁMI RÁJA]

Chinese border, his attempt to remove the seat of empire from Dehli to Doula-tábád, his application for investiture from the Khaliph of Mecca, and many extravagancies which caused his sanity to be suspected. [The name Yavana, as is well known, is generally applied by the Brahmins to their Mahometan conquerors; though arising from a misconception of the term as occurring in their own ancient books, where it undoubtedly refers to the Greeks, whom Persians, Phœnicians and Hebrews always designated by the same name.]

\* The SHAHAB UD-DIN here meant is not the emperor OMAR SHAHAB UD-DIN, who succeeded his father ALA UD-DIN, A. H. 716, and was murdered after a short reign of three months; but must be one to whom, as FERISHTA tells us, MUHAMMED SHA'H gave the title of MALIC (by which he is called at the close of this inscription) and a place called Nusari as a jaghir. FERISHTA'S words are

وملک شهاب الدین را ملک افتخار خوانده نوساری را بجگاگیرش  
مقرر کرد Further on in the life of the same Emperor MAHAMMED IBN TUGHLEK, and nine years after the date of our inscription, that at the close of a successful expedition to the Dekhan he gave to Sultan SHAHAB, who is most probably the same person, the title of NASARET KHA'N, and the government of Baidar on the Indus, yielding annually the revenue of a crore of rupees وشهاب سلطان را نصرتخان خطاب داده ولایت بیدر خوانده او نمود و اقطاع  
سلطان آن نواحی را بصدک تنگه مقاطعه باو داده All this is confirmatory of what is apparent from the inscription, viz. that this SHAHAB UD-DIN was the general of the army which MUHAMMED SHA'H or his Hindu minister sent against the Rája of Benares.

[A celebrated Cazi named SHAHAB UD-DIN is commemorated by ABUL FAZL, who was flourishing at the time of TIMUR'S invasion at the close of the 14th century. But this is somewhat too late.]

† This SAIRÁJA I do not find mentioned by any historian of the time.

‡ The allusion is here to the several modes of dealing with an enemy enumerated in MENU VII. 198, viz. सामन् pacification, दान presents भेद sow-  
ing dissensions; either of which three the Hindu legislator prefers in respect of

abandoned the fort for some days ; only (presents) having been given (to the enemy, according to usage.)

X. (But once more) to protect his own people did the noble king SVÁMI RÁJA, the crusher of the pride of alien heroes in fight, (ascend his chariot)\* surrounded by applauding heralds: but (having perceived) the great Turkish warrior surnamed (SATA) DOS [or him of the hundred arms], at the approach of the hateful one in battle, he again left the fort of his own accord.

XI. Thence having approached *Bhagavati* [the goddess ANNA PURNA DEVI at her city Benares,] having abode there, and meditated on her benevolence, thence returning with care, he established his kingdom here free from all thorns of trouble.

Samvat 1390, in the month Bhadra, fifth day of the waning moon, [Aug. 5, O. S. A. D. 1333,] on Thursday, was the kingdom set free from MALIC SHAHÁB UD-DIN, acting under the protecting favor of SAIRÁJA DEVA aforesaid.

REMARKS ON THE SANSKRIT TEXT.

Verse I. The Benares Pandit's reading काशीस्थानेषु राजा is much worse in sense, beside being inconsistent with the evident letters of the inscription, which are as exhibited above. The यो is required in Sanscrit construction by the तत् of the next line.

II. The B. P.'s reading सोऽधिपः स च विख्यातो विजिता वसुधाधिपैः though somewhat smoother in metre, is inferior in every other respect to this, which (except for the indistinctness of the रा in विसाहो and of the syllables वनाधि is clearly marked on the stone.

In the second half, the B. P.'s reading शत्रुपाद is inconsistent with the characters on the stone.

III. In the last quarter of this verse, I wish I could read with the B. P. विश्वेशपुरपालकः in one compound; Visvésa-pura being a well-known name of Benares.—But the *visarga* is too clear on the stone to admit of that reading.

IV. In the second half of this verse only the beginning प्रस and the end सुदे with the exception of an ि in the middle, is clearly legible. My conjectural reading of the rest in small characters is accommodated to this—whereas the B.

prudence, to the fourth दुद्धं giving battle; and our prince SVA'MI RA'JA seems to have been of the same mind. The meaning here is however that to the first, *pacification*, he preferred the second, of buying off the enemy. If for ननु we read नतु, it would mean that he abstained from both of these methods: if we read नाना, it would mean, on the contrary, that he was profuse in his presents while he abstained from making peace. The first seems to me the best reading of the three: and all of them more probable than नूनं which is the reading of the Benares pandit.

\* I find no Moghul or Afghan warrior to whom this name can be considered as necessarily applying. The syllable शत् sata is conjecturally supplied to fill a hiatus on the stone.—W. H. M.

P.'s मुयशाः शास्त्रि दुर्गैःस्त्रिन्परा प्रबणमानसः is altogether gratuitous and irreconcilable with the yet remaining letters of the verse.

V. The B. P.'s reading of this verse :

सहावदीनदुष्टात्मा यवनो दुष्टदुर्मदः ।

असौ महाराजमित्रो वैरिणोऽपि कृपानिधिः ॥

has only the advantage of mine as to the antepenultimate syllable of the first half, viz. the 2nd दु being somewhat more like what appears on the stone. In every other respect where there is any difference, any one may see how entirely he varies from the characters there visible, beside being incorrect in grammar and prosody, and quite unintelligible. Only three syllables of mine are conjectural, in a place where the stone is broken.

VI. All of this verse, which is not distinguished by small letters, is most clearly traced on the stone : but the B. P. has retained nothing of it but the three first syllables of the second line, (in which also he has thrust in another syllable with a *visarga* without warrant) in his reading, which is—

तदा सद्वाट् सहातेजाः शास्त्रि माहमहम्मदः ।

ततः युत्वा स यवनः तत्कीर्त्तिं कोपसंयुतः ॥

most entirely gratuitous ! beside that it annexes the first to sl. 5, and begins the 6th with the other.

VII. VIII. In these two verses, between which there is an interval in a broken part of the stone sufficient to contain a half-sloka or line, and which may throw some reasonable doubt as to the precise divisions of the slokas or distichs, the B. P., who divides differently from me, has not attempted to retain any thing of the yet remaining large characters on the stone, except in the first line, and the beginning of the last but one ; while any one who compares his reading with mine, will see how much more he varies from his original. His reading is in five lines, as follows :

सहसासीतिभल्लिकैः घनुर्वानैरसंख्यकैः ॥ [Here वाण *anarrow* is misspelt.]

आगत्य दुर्गं रुरुधे नतुस्थानेषुसर्वतः । [No संसर्दतो as on the stone.]

प्रविवेश च तं दुर्गं सव्यस्य सह सेनिकः ॥ [A false concord here.]

ततस्तु सर्व्यं नतुस्थानं समाक्रान्तं प्रयत्नतः । [All but the first syllables quite incompatible with the stone.]

अग्रजादेशमाकर्ण्यं स्वामिराजः पुनः स्वयं ॥

IX. This the B. P. read quite differently ; but any person comparing his two first lines with mine, may judge which is the nearest to the actual inscription. His third line is altogether gratuitous.

ततस्तत्याज सामान्यः तं दुर्गं स क्रियद्दिनात् ।

नूनं स तेषु देशेषु साम्राज्यं कृतवान् स्वयं ।

तत आगत्य यवनो जज्ञे राज्यं स दुर्मतिः ॥

X. In this sloka, which is in the lyrical measure called *Sārdūla vikrīditem*, the B. P. has made the following very serious mistakes, 1st, making its *second* pāda or hemistich the *first*, (reading it otherwise quite correctly) to the exclusion of all the legible syllables of the first pāda, whose place in the measure is so palpable, viz. the 3rd, 4th, 5th, 6th, 15th, 16th, 17th, 18th and 19th or last, which are on the stone clearly as they are here represented in large letters [having gratuitously supplied their place by a 3rd *Anustūbh* line to verse IX. !] 2ndly.



Filling up the place of the 3rd and 4th pádas by a crowded *three* of his own making entirely, except the eight last syllables of the last—though so much more of them are *clearly legible* on the stones at their proper intervals—just as I have placed them in the midst of the conjectural supplements. The B. P. has

संग्रामे परवीरदर्पदहनः श्रीसामिराजोऽनूपः ।  
पूर्वं प्राप्य सहेन्द्रादरवशाद्भ्राज्यं गुणी धार्मिकः ॥

(This 3rd páda has a glaring false quantity.) पञ्चात्प्राकृतस्वीयकर्मवशतो दौर्भाग्यभावाद्दद्यात्  
षाड्गुणादिगुणान्वितोऽपि स पुनः तत्याज दुर्गं स्वयं ।

XI. This last verse, which is *Anustabh*, like the nine first, is read by the B. P. as I read it, except that the 2nd quarter is with him *संस्थितश्च कियद्दिनं* quite unlike the stone, and that the 3rd he begins differently, viz. *पञ्चात्तत्पयागत्य* borrowing to this place what he had omitted in the 2nd. The stone gives clearly throughout what I have written above.

After the date and the word *गुरौ*, the B. P. has gratuitously expanded the rest into a sloka, as follows :

गुणसौ राजदेवोऽयं शरणागतपालकः ।  
सहबदीनयवनः कृतो येन सुरञ्जितः ॥

I will add, that the inscription, as it is now legible, affords no countenance to the B. P.'s supposition, that the discreet *SVA'MI RA'JA* acted under his elder brother *CHANDRAGANA*. He rather appears to have been his successor.

W. H. MILL.

#### *Barahát Inscription.*

*No. III. of the same plate*, is the inscription from *Barahát* in *Garhwal*, presented, in duplicate, to the Society by the Commissioner, Mr. *TRAILL*. This inscription also has been deciphered in part by the Rev. Principal of Bishop's College, who has kindly communicated its contents to me in the following letter :

"I have the pleasure of sending one of the *Kemáon* inscriptions, that of *Barahát* in *Garhwál*.

It opens with the invocation *स्वस्ति श्रीः Svasti Sri*, addressed apparently to a prince, and the first line contains the words *यस्य यत्र हर्म यच्छृङ्गाच्छ्रितं द्वापं* 'whose and where is a palace which is on a lofty peak and splendidly magnificent.' The second line of the inscription is a turgid verse in the *Sárdúla vikrídita* measure, as follows :

पुत्रस्तस्य महर्त्तुस्त्र्यष्टयुभुक्सेनोन्नतोरुस्थलः  
कामत्यागनयेरनद्धधनुरप्यामीन उद्यंस्तनः ।  
नाम्नाग्रे तु य इत्युदारचरितः सद्धर्मधीरः स तां (understand सेनां)  
सक्तीशोत्तम आरथप्रमथनीं मग्नसकारायतः ॥

"His son, whose ample condition was exalted by a numerous army, devouring the juices of the earth like the sun of summer, then arising sat on the throne, and even with his bow unbent, still ruled with

sage counsels, and the abandonment of all selfish passions. He who was originally by name *Udāra-charita*, (the man of generous deeds,) being skilled in all holy duties, did even thus at once, as the best of the lords of power, reduce to fragments the army opposed to him, though crushing all other adversaries, chariots and all."

This is the whole of the second line. The third and last which is in prose begins प्रीतः प्रीतस्य "the beloved son of a beloved father, and ends with the words . . . . . तिलकं यावदङ्गे पिपत्ता तावत्कीर्तिः" सुकीर्त्तियारचरमथ तस्यास्तु राज्ञः स्थिरम् "As long as the sacred mark remains in the body, so long has the glory of these two illustrious ones (father and son) been concealed: but henceforward may the immortality of this king be unshaken !"

The meaning is not very good, and the word सुकीर्त्तः for Illustrious, is unusual, if not semi-barbarous, in its formation ; but I can make nothing better of it, neither can I spell out the father's name from the strange characters of the first line. The second one is the only part on which I have no doubt.

W. H. MILL.

#### *Iskardo Inscription.*

No. 3 of Plate IX. is a copy of the inscription on a granite rock near Iskardo, the capital of Little Tibet, taken by Mr. VIGNE, the English traveller, who sent it down through Captain WADE in hopes that M. CSOMA DE KÖRÖS would be able to decypher it.

Being found under an image of Buddha, it may be concluded that this inscription is but an extract from some of the sacred volumes of his followers ; but it is in too imperfect a state for M. CSOMA to be confident of the rendering, although a large portion of the letters may be read with ease and certainty. Their accurate form would pronounce them to have been copied by an artist, if not by one acquainted with the Tibetan alphabet.

#### *Ajunta Inscription.*

No. 4 of Plate IX. This mutilated inscription is from the caves of Ajunta. I am indebted for it to Mr. RALPH and Capt. GRESLEY, of Aurangábád, who paid a visit to those celebrated excavations last year, and I am not aware that this particular inscription has been yet published.

Mr. RALPH states that it was found "not in the largest Bauddha cave, but in the first which we inhabited, and the one where a square was formed by four pillars each way. The letters were on the right hand of a doorway of a small apartment leading into one containing the figure of BUDDHA ; but here he was not represented with the two African statues of attendants, nor is this the cave where the Grecian helmets are found. The rough sketched countenances which are plac-

ed under the writing are in keeping with those that cover the whole of the little chamber, at distances of two or three inches from one another—these appear to be portraits of disciples seated,—all half lengths.”

Captain GRESLEY has favored me with a ground plan of the cave from memory, but as accurate measurements were taken by Dr. BIRD in 1828, for Sir JOHN MALCOLM, for the Royal Asiatic Society, it is unnecessary to insert it.

“The large cave, 40 feet square within the eight columns, has more brilliant figures in fresco painting than any I have visited. It is the one which contains what some have miscalled the *zodiac*, a portion of a large circle on the wall outside the first cell on the left hand on entering the cave-temple, where many small figures may still be traced.” Some damage has been done since 1828, and it is the opinion of these travellers that time and rain will soon render the caves altogether inaccessible.

The first letter of the inscription is sufficient to shew to what alphabet the Ajunta writing belongs: it is precisely the *y* of the Allahabad and Gujerat inscriptions; the second letter is *dh* of the same alphabet, and the third is the *m* of the coins of the same period, differing slightly from that of both the inscriptions above named.

The collocation of these three letters, agreeing exactly with the commencement of the sacred text so constantly found on all the ancient Buddhist images lately brought to notice from Ava, Benares, or Tihút, *Ye dharma*, &c., led me to look for the remainder of the stanza; but it was evident that the text would not bear such a construction. Perhaps the Rev. Mr. STEVENSON, whose attention has been successfully engaged on the Carli inscriptions, than which however the present seems considerably more modern, may be able to fill up the chasms and rectify the mutilations of this short legend, if indeed it be worth while to do more than recognise and record the style of *Nágari* to which it belongs.

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No. 5 of Plate IX. is merely a word in an inscription from the *Behtari* column, *Ghazipur* district, concerning which, as it occurred on the Allahabad column, a difference of opinion existed: Captain TROYER reading it *Yagna Kacha*, and Dr. MILL, *Ghatot Kacha*: the latter is evidently the most probable, if it be not quite certain; but I hope to be able to insert the whole inscription (taken down with great care by Lieut. A. CUNNINGHAM, Engineers) in my next number, with a full interpretation by the Rev. Principal of Bishop's College. I had lithographed it as Plate VII. to precede the present two, but the translation was not ready for insertion.

J. P.

IV.—*Descriptive Catalogue of Terrestrial and Fluvial Testacea, chiefly from the North-East Frontier of Bengal.* By W. H. BENSON, Esq. B. C. S.

The species of land and fresh-water shells described in the following pages, form a collection, chiefly made in the hills on the N. E. frontier, which was purchased by the Asiatic Society of Bengal in 1833. One of the land shells, *Scarabus triangularis*, and two *Neritinae* and a *Melania* among the fluvial shells, inhabit the jungles and streams of the Gangetic Delta, and were probably collected on the route to Sylhet. Several shells belonging to the genera *Cerithium*, *Cancellaria*, *Planaxis*, *Phasianella*, and *Pedipes*, which occur in the collection, have been omitted, as being, in all probability, marine, or semi-marine productions procured from the embouchures of the Deltaic rivers.

1. *Vitrina Gigas*. Testâ tenui, corneo-virente, ovato-depressâ, auriformi, velociter crescente, suprâ planatâ, rugis concentricis et striis radiatis decussatâ; subtus tumidâ; ultimo anfractu valde ventricosco, penè totam testam efformante; aperturâ transversâ, rotundato ovatâ, prægrandi; labio valdè arcuato. Diam. 1.15 poll.

This shell is so flattened, and enlarges so quickly, that it has very much of the appearance of one of the *macrostomata*, to which I referred a specimen from the caves of Sylhet, recently fossilized with calc-tuff, when I first saw it. It has only two whorls exclusive of the apex, and differs in size, in the depression of the spire, in the very arcuated left lip, and the more extended mouth from the European species *V. elongata*. I believe that it is the first shell truly belonging to this genus which has been ascertained to inhabit India. Since I became acquainted with it, I have met with a second species alive, adhering to dead leaves at the roots, and to the lower part of the trunks of trees in the teak-wood attached to the Botanic Garden of Calcutta; but the characters of the animal restrict it to the genus *Helicarion* of CUVIER. Whether *V. Gigas* belongs to CUVIER's *Helicolimax* or to *Helicarion*, cannot be ascertained without an examination of the animal; I therefore leave it in the original genus as defined by LAMARCK.

2. *Nanina decussata*. Testâ corneâ, disordeâ, sub-depressâ, umbilicatâ; spirâ exsertiusculâ, obtusâ; anfractibus septem suprâ planatis, ultimo obtuse angulato; epidermide suprâ argutè decussatâ, infrâ radiatim striatâ; apertura transversâ, lunatâ. Diam. 1 poll; axis 0.35

On a cursory inspection of this shell, I erroneously considered it to be a variety of the species "*vitrioides*" DESHAYES, belonging to Mr. GRAY's genus *Nanina*, (Zool. Proceedings, 8th July, 1834,) which I indicated under the name of *Macrochlamys* in the first No. of the Jour-

nal of the Asiatic Society for January 1832, pp. 13 and 76, and which I altered to that of *Tanychlamys* in a paper on the genus read before the Zoological Society in August 1834. Mr. GRAY'S characters, drawn up from specimens preserved in spirits, and from General HARDWICKE'S drawings, having the advantage of priority of publication, his name, although inexpressive, will necessarily be adopted. Several independent observers have united in stating the necessity of separating this genus from *Helix*, on the characters of the animal; witness the observations of Lieut. HURTON, Journal of the Asiatic Society, vol. iii. p. 83.

The species under review differs from *N. vitrinoides* in sculpture, has a more exerted spire than the generality of specimens of that shell, has a more angular periphery, is of a lighter colour, and, possessing the same number of whorls, is larger and of a thicker substance. The epidermis is apt to peel off the under side.

I have a third species belonging to this country, which I lately took at the foot of the Rajmahal hills. It differs in its smaller size, its lighter colour, and in the form of the aperture from both *vitrinoides* and *decussata*, and from the former it altogether differs in its habits even when inhabiting the same spot, abounding on shrubs and bushes, while *N. vitrinoides* is confined to the ground, to rocks, and to brick work.

3. *Helix plectostoma*. Testâ reversâ, depresso-conoideâ subtus tumidâ; spirâ exsertiusculâ; anfractibus suprâ planatis, radiatim plicatis, rugis transversis decussatis; ultimo angulato, angulo subtus marginato. Aperturâ lunatâ, plicâ, (ut in *Helice personata*) interdum inconspicuâ, ultimo anfractui adhærente; umbilico profundo, anfractus plerosque exhibenti. Diam. 0.35 poll. paulo plus.

This shell has a salient plate on the penultimate whorl connecting the two extremities of the peristome, as in *H. personata*, but differs from it in its other characters. The peristome is more rounded than in *H. Coccyrensis*, the spire more conoid, and the sutures less conspicuous. It belongs to the subgenus *Helicodonta* of DE FERUSSAC, but in the angularity of the periphery it approaches to *Helicigona*.

4. *Helix Oxytes*. Testâ ferrugineo-corneâ, depressâ; spirâ convexâ, apice planato; periphæriâ acutâ; anfractibus obliquè subplicatis, suturis non excavatis; peristomate subreflexo; umbilico lato et profundo anfractus usque ad apicem exhibenti. Diam. 1.8 poll.

In form it exactly resembles *H. acumen* of Dalmatia, but exceeds it in size, and differs in colour, in its sub-reflected mouth, and in sculpture, the whorls being destitute of decussating striæ and of the polish which adorns the latter. It belongs to DE FERUSSAC'S groupe

of *Helicigona*, and to the 2nd division, *Vortices*. It would stand as a *Carocolla* of LAMARCK. Whorls six, exclusive of the apex.

5. *Helix climacterica*. Testâ subdepressâ, subtùs tumidâ; spirâ sub-conoidea, gradatâ; anfractibus omnibus angulatis, suprâ planatis, argutè plicatis; apice obtuso. Periphæriâ angulatâ. Peristomate acuto, non reflexo. Umbilico nullo. Diam. 0.75 poll.

This species resembles *H. barbata* of Cephalonia in its general habit and in the peculiar form of its spire, which rises like a flight of steps; but the apex, though obtuse, is more exserted, and is destitute of the flattening observable in the Cephalonian species. Whorls eight, exclusive of the apex. It belongs to *Helicigona* of DE FERUSSAC, and to its first groupe, which is destitute of an umbilicus.

6. *Helix Serrula*. Testâ subdepressâ, sub-conoideâ subtus convexâ; apice acuto; anfractibus suprâ confertissimè radiatim plicatis, marginatis, marginibus elevatis; ultimo anfractû infrâ læviore, periphæria marginatâ, serratâ. Umbilico profundo, mediocri; peristomate acuto. Diam. 0.55 poll.

Whorls seven, exclusive of the apex. This is also a *Helicigona*, 2nd groupe. It is allied to a new unnamed species which I have from Malta, but has a smaller umbilicus in proportion, and a more acute spire. It is also larger.

7. *Helix tapeina*. Testâ sub-conoideâ, suprâ convexâ, subtùs tumidâ; epidermide minutissimè corrugatâ; periphæriâ angulatâ, peristomate non continuo, subreflexo. Umbilico mediocri, profundo; omnes anfractus exhibente. Diam. 0.6 poll.

Whorls seven, exclusive of the apex. It is allied to *Carocolla Lapidida*, but differs in sculpture, in its discontinuous peristome, less angular periphery, and more conoid spire. The aperture is also more open. It belongs to the 2nd groupe of *Helicigona* of DE FERUSSAC, and to the genus *Carocolla* of LAMARCK.

8. *Helix delibratus*. Testâ depresso-planâ, subtùs tumidâ; epidermide corneâ deciduâ; anfractibus transversè striatis; aperturâ transversè rotundato-ovatâ; peritremate vix continuo, reflexo; umbilico lato, anfractus plerosque exhibente. Diam. 0.9 poll.

Whorls four. Of the same type as the European species *H. cornea*, from which it differs in colouring and in the form of its spire, which resembles that of *H. deplana* of Croatia; but from this species it differs in the form of the mouth, and in the markings, as well as in its more open umbilicus. From *Helix granulata* (mihi) of the Western Provinces, it differs in the more transverse mouth, more flattened spire, and wider umbilicus, in its plainer colouring and greater size, and in the want of that minute shagreened appearance, under the lens, which

renders that species so remarkable. It belongs to the subgenus *Helicella* of DE FERUSSAC. The epidermis scales off like that of the *Solenes*, whence the trivial name which I have conferred upon it.

9. *Helix Cestus*. Testâ subdepressâ, corneâ vel fusciscente, radiatim striatâ, subtus convexâ, perforatâ; spirâ sub-conoideâ; apice obtuso; ultimo anfractu sub-angulato, fasciâ unicâ rufo-fuscâ, mediâ, reliquis fasciâ saturali cinctis; peristomate sub-reflexo. Diam. 0.65 poll.

Whorls five. *H. cestus* approaches in form and colour to a species which I possess from the Tyrol, and which is marked "*H. zonata*," but which does not agree well with LAMARCK's characters of *planospira*, of which he gives DE FERUSSAC's *zonata* as a synonym. It differs from it in not having a white or a much reflected peristome. It belongs to the sub-genus *Helicella*.

10. *Bulimus citrinus*. LAMARCK.

This is the reverse variety of a handsome shell, of which South America is recorded as the habitat by LAMARCK. It is perforated, (of which character he makes no mention,) and of an uniform yellow, without bands or marks, and being weathered, no polish is observable. Length one inch.

11. *Achatina tenuispira*. Testâ elongato turrîtâ, corneâ, longitudinaliter striatâ, versus apicem attenuatâ, columnari; anfractu ultimo interdum fasciis quibusdam albidis transversis ornato; suturis impressis; apice obtuso. Long. 1 poll. circiter. Lat. 0.55.

This *Achatina*, belonging to DE FERUSSAC's subgenus *Cochlicopa* and to his groupe of *Hylloides*, is remarkable for the attenuated columnar form of the terminal whorls of the spire.

12. *Achatina crassilabris*. Testâ turrîto conicâ, lævi, corneâ, longitudinaliter striatâ; anfractibus convexis, suturis excavatis; labro intus incrassato; columellâ præarcuatâ; apice obtuso. Long. 0.7. Lat. 0.3 poll.

This shell has the habit of a Ceylon species which I believe to be *A. nitens* of GRAY. It differs in greater size, in its incrassated outer lip, in its somewhat more ventricose form, and in its sculpture. It approaches to SWAINSON's genus *Achatinella* in the arcuation of the columella, but differs in the absence of the thickened pliciform termination to it, and in having the incrassation quite at the edge of the outer lip, instead of removed to a little distance within it.

13. *Clausilia loxostoma*. Testâ sinistrorsâ, fusiformi, medio ventricosâ, corneo-griscescente; anfractibus convexis, lævigatis, striis obsoletis; suturis confortissimè crenulatis; aperturâ elongatâ obliquâ, bi-plicatâ, suprâ angustiori, infrâ dilatâtâ peristomate reflexo; columellâ præarcuatâ. Long. 0.85 poll.

Out of a collection of 32 European *Clausiliæ*, I find none with a similar obliquity of mouth, from which character I have named the species. The outer lip projects beyond the plane of the aperture. The crenulations of the sutures differ altogether from the papillary appearance which is common to several species, such as *papillaris*, *albo-guttata*, &c., and they are not elongated as in *C. nitida*.

14. *Scarabus triangularis*. Testâ compressâ ovato-conica, ætate subtriangulâri, cornea, fasciis castaneis plurimis interdum obsoletis cinctâ, rugis longitudinalibus salcisque transversis, distantibus, interruptis decussata. Spirâ acutâ breviori; suturis obsoletis. Anfractûs ultimi varice saliente lamelliformi. Aperturâ quadridentata, biplicata; dentibus, uno insuper columellarium, tribus super costulam intro-labialem sitis; plicâ unâ columellarii duplici, pandatâ, alterâ columellæ recurvâ, parvâ. Umbilico lineari, transversali, penè clauso. Length 0.9. Breadth 0.65 inch.

This shell, independently of its form, sculpture, colouring, and acute varix, may be at once distinguished from *Scarabus imbrium* by its peculiar umbilicus; that feature being rounded and perforate in the Malassan species. The number of teeth on the rib, which is situated at some distance within the outer lip, is very variable, ranging from three to seven; of these three are always more prominent. In weathered specimens the subordinate denticulations are generally unobservable. Occasionally the whole of the shell is of a dark chestnut colour, with obscure bands of a more saturated colour. In his Synoptical table, DE FERUSSAC mentions two species from Bengal, *S. plicatus* and *S. Petiveri*, both distinct from *S. imbrium*. As he gives no description, I am unable to say whether our shell is identical with either or both: the latter contingency may possibly be the case, considering the great difference of form observable between young and aged specimens, and the uncertainty attendant on the species *S. Petiveri*, which appears to have been established solely on the inspection of a plate, no reference being made to any museum.

All the specimens of the shell in the collection are weathered, and in that state appear of a livid purple colour; this circumstance was, however, amply compensated for by an excursion which I made with Dr. PEARSON to the alluvial island opposite to Fort William, in quest of objects of natural history, during which that gentleman discovered the live animal under decayed vegetation, and under bundles of the *hoogla* grass cut down for sale. From these retreats, which it occupied in company with the amphibious *Assiminia Gangetica*, we made a large collection in a short space of time. I have searched for it in vain on the neighbouring mainland, in the vicinity of the Bishop's



College and the Botanic Gardens, as well as on the opposite side of the river; but specimens of deserted shells were taken by a friend, as low down as the junction of the Damoda with the Hooghly.

It is only of late that French naturalists have verified the terrestrial habits of the genus. The present species is much distressed when thrown into water, and crawls out of it when immersed. Its decidedly amphibious companion, *Assiminia Gangetica*, I have met with, on dewy mornings, more than a furlong from the river's bank, crawling among moist grass.

15. *Cyclostoma involvulus*. (MULLER.)

This elegant species, which is abundant in a living state at Rajmahal, Secrighally, and Patharghata in Behar, attains a large size in the Silhet collection. When adult it is always possessed of a beautiful orange colour on the peristome. It is *Cyclostoma torquata* of Lieut. HUTTON, J. A. S. vol. iii. page 82, and is the species alluded to by me in vol. i. page 12, in my remarks on the genus *Pterocyclos*.

16. *Cyclostoma zebrinum*. Testâ albidâ, strigis plurimis rufo-custaneis, angulato-flexuosis pictâ, spirâ depressiusculâ, acuminatâ; anfractibus plicis paucis transversalibus distantibus, ultimo rugis undulatis longitudinalibus sculptis; carina mediâ subacutâ. Aperturâ amplâ, peritremate reflexo; umbilico parvo. Epidermide crassâ, fuscâ, plicis longitudinalibus, his setis fortibus munitis, instructis. Diam. 10.35 poll.

I was at first disposed, from a consideration of the habit of this shell, to view it as a variety of a Tenasserim shell, described by Mr. G. B. SOWERBY in the 5th volume of the Zoological Journal under the name of *Cyclostoma perdix*; but a careful comparison with specimens which Mr. SOWERBY had kindly presented to me, has enabled me to distinguish it as a separate species. It differs in its sculpture, in its more developed keel, more contracted umbilical cavity, and in the possession of a singular epidermis, of which Mr. SOWERBY'S specimens of *C. perdix*, though one was taken alive at Tenasserim, appear to have been destitute. In the latter species the markings are white mottled on a chestnut ground; in *zebrinum* they consist of distant zigzag flames of light chestnut on a white ground.

17. *Pterocyclos hispidus*. Spiraculum hispidum, PEARSON, Journal of the Asiatic Society, vol. ii. p. 391.

The acquisition of several live specimens of this genus (established by me in the first No. of the Journal) during the last rainy season, at the hill of Patharghata in Behar, where I first met with dead specimens of *P. rupestris*, enables me to disprove the conjecture of Dr. PEARSON that a branchial apparatus or projecting syphon is attached

to the neck of the animal, as well as to confirm its affinity with the genus *Cyclostoma*, with which Mr. SOWERBY has classed it. The name originally annexed to the genus was altered by Dr. PEARSON, on insufficient grounds, as, independently of the violation of received rules of nomenclature\*, of the existence of the tabular appendage in perfection in only one species of the genus, and its non-existence in others, the new name tended to convey an erroneous impression of the use of the anomalous excrescence observable in the shell of *P. hispidus*.

Dr. PEARSON assumes that the specimens of *P. rupestris* from which the characters of the genus were taken, were immature shells, but a strict search in the habitat of the species, and the acquisition of 16 specimens of different ages and growth, of which 12 bore all the marks of being adult, dispelled all doubt of the obtainment of the perfect shell. The retromitted and retroverted tubular wing, affording an index of a former mouth, and which does not appear to have been accompanied by a reflexion of the peristome, exists in that form in *P. hispidus* only, and the sinus under the wing which crowns the final aperture is never so strongly marked as in the other species, bearing more resemblance to the channel under the wing of GRAY'S *Cyclostoma Petiverianum*, which shell indicates the passage to the Genus *Cyclostoma*, not only by this feature, but by the intermediate form of its umbilical cavity, and its operation.

A comparison of the animal of *Pterocyclos* (my four living specimens of which I assumed to be female, from the absence of the exerted organ so conspicuous on the neck of the male *Cyclostoma*) with that of *Cyclostoma involvulus* shewed only the following differences. In *P. rupestris* the mantle is sinuated, to correspond with the sinus at the crown of the aperture, and its edges are reflected over the edges of the sinus, but there is no organ projected through it by

\* In conferring generic names it is an obvious rule that the part should not be put for the whole, by designating the genus from an organ, without a change of termination, or the addition of a distinguishing epithet. The circumstance of the feature being peculiar in the family to which the groupe belongs, will not justify a departure from the rule; were a relaxation from it allowed in one instance, we might be called upon to recognize an anomalous form among the acephalous mollusca (to suppose an extreme case) as the genus "Caput!" In the present instance the effect of the proposed substitution, is to set aside a name published by the first describer of the genus, which name is equally applicable to every species hitherto discovered, as it is not contingent on the presence or absence of a sinus or a tabular, or other perforation, but on the existence of a wing attached to the otherwise circular aperture. Hence the supposed necessity for a change of nomenclature is not apparent.

the animal, nor does the mantle line the interior surface of the wing. No organ likely to occupy the sinus is observable either when the animal is crawling or when it is drawn out to its fullest extent. The foot is shorter in proportion than that of *Cyclostoma*, hardly appearing beyond the disc of the shell when the animal is crawling, and the curious cup-shaped operculum is received into the wide vortici-form umbilicus of the shell, which it almost fills, whereas the thin flat operculum of *C. involvulus* is carried behind the shell.

My living specimens of *Pt. rupestris* were taken at Patharghata\* during a morning shower in September. I had in vain searched the ground and bushes among the moist rocks and dripping jungle, where multitudes of *Cyclostoma involvulus*, the reversed *Helix interrupta* and *Nanina vitrinoides* were moving about, and had nearly abandoned the search, when I thought of trying an open tract of the hill whence the jungle had recently been cut. Here, on the exposed side of the hill, as well on the bare surface, as under leaves, I at last discovered the sought-for shell. At the foot of the hill a single specimen of a small conoid *Helix*, which I had recently discovered at Berhampore, was found adhering to the leaves of a shrub.

*Pterocyclos hispidus*, is perfectly distinguished from *P. rupestris* by its greater size, the flatness of its spire, its sculpture, hispid epidermis, retromitted tube, and the inferior development of the adult mouth. Coming from a climate where it enjoys damp throughout the year, it may possibly use the perforation for a breathing hole when its aperture is closed, but in *P. rupestris* the operculum is drawn in beyond the sinus, so that no such use can be made of it for breathing air, for which, moreover, it has probably little occasion during the season of drought and torpidity.

18. *Pterocyclos parvus*. Spiraculum parvum, PEARSON, Journal of the Asiatic Society, vol. ii. p. 592.

This species, which is coloured like one of the varieties of *P. rupestris*, never attains more than half the size of that species. The numerous specimens brought from Silhet have all a perfect, reflected peristome. It is also distinguishable by the greater tendency of the sinus being often in strict contact, though the circle is never completed by

\* Besides some other plants in flower which I had not leisure to note, I observed a little blue-flowered *Tradescantia*, a dwarf *Ruellia*, and a beautiful large-flowered *Pesticia* with spikes of flowers of a pale verdigris-green colour, which I had only once before seen ornamenting a corolla in a species of *Ixia* (*J. maculata*?) In December 1831, the jungle on the side of Patharghata was flaming with the rich blossoms of *Holmskioldia coccinea*. On Kotanási, a hill between Patharghata and Terriagali, I captured a fine specimen of the splendid *Buprestis Chrysis*.

the confluence of the shelly matter. The impending wing also shews a greater tendency to a retroverted and tabular form.

It is probable that SOWERBY'S *Cyclostoma bilabiatum*, from Salem in the Madras presidency, will form a fourth species of *Pterocyclos*, distinguished by the sinuated addition at the back of the true lip. When I examined it in London, I thought that it was identical with *P. rupestris*, and that my specimens of the latter had not attained their full growth; a further search in the locality of the species, and the consideration that the sinuated lip must have been of previous formation to the reflected circular aperture, have contributed to alter my opinion on the subject.

*Cyclostoma suturale* has the aspect of an immature *Pterocyclos*. Its habitat is, I believe, Demarara.

I had prepared the whole of my notes on the collection both of land and fresh-water shells during a period of leisure previously to the close of last year, but I have since then been prevented by want of time from correcting and arranging them. Dr. PEARSON'S hint, in his report on the Museum, has called forth this first brochure, consisting of the land-shells, I fear in rather an unfinished state, for which I trust that circumstances will prove an apology. The fresh-water shells shall follow at the earliest practicable period.

V.—Description of two new species belonging to a new form of the *Mcruine Group of Birds*, with indication of their generic character.  
By B. H. HODGSON, Esq. Resident in Nèpál

These birds have the wings, tail, and feet of *Turdus*; and if we continue the comparison from the external to the internal characters, we find a similar construction of the tongue, stomach, and intestines in both.

Both, too, have a similar regimen, habits, and manners. Yet they are strikingly contradistinguished by the respective forms of the bill. In the thrushes that member is compressed, and has its arched maxilla freely exerted from the frontal feathers, and very little cut out by the nasal fossæ. In the birds now in question, on the contrary, the bill is so much depressed as to be more than twice as broad as high at the base; and its straight maxilla, greatly incumbered by the frontal plumes, has the nasal fosse so far produced to the front as to pass the centre of length of the bill.

In the birds before us, too, the head is furnished with a garruline crest; which is never observed in *Turdus*. The tarsi are lower than in the generality of thrushes; and the tail is somewhat longer and less even at the end. Like most of the Nipalese thrushes, these birds are common to all the three regions of the kingdom. They are shy in

their manners, adhere exclusively to the woods, live solitarily or in pairs, breed and moult but once a year, nidificate on trees, and feed almost equally on the ground and on trees. I have taken from their stomachs several sorts of stony berries, small univalve mollusca, and sundry kinds of aquatic insects.

These birds are not generally or familiarly known to the Nipalese, but the foresters, whom I have met with, denominate them *Cocho*: and by that name, latinised into *Cochoa*, I have designated them generically in my note book.

As a *Meruline* genus, placed close to *Turdus*, the following character may perhaps serve to mark them.

Wings, tail, and feet, as in *Turdus*.

Tarsi rather lower and tail somewhat longer.

Bill straight, considerably depressed: the maxilla excided beyond the centre by the nasal fosse: the nostrils very large, and nearer to tip than to gape. Head crested as in *Garrulus*. The two species at present known to me I shall call, from their prevalent colour, *Viridis* and *Purpurea*.

The following is their description:—

*Cochoa purpurea*. Purple Cocho, Mihi. Male, dark purple: cheeks black: crest, tail, and upper apert portion of the wings, soft grey blue, more or less purpurescent: lower part of the wings and tip of tail, black; and both black internally: a white speculum on the wing, just below the false wing: bill and legs black: iris brown. The female, brown where the male is purple; and the upper part of the wings also brown. The young are rufous below with black bars: brown above with rufescent white drops: head blue as in maturity, but barred. The species is eleven to eleven and a half inches long by sixteen to seventeen wide, and weight three and half to four oz.

*Co. Viridis*. Green Cochoa, Mihi. Brilliant parrot green, paler and changing into verditer blue on the belly and thighs: crest, cheeks, and neck posteaally, brilliant blue: upper part of the wings and tail, the same, but paler with a grey cast; and both black internally, and apertly towards the ends, as in the preceding species; through the eye to the nostrils black: bar of same hue across the pale portion of the wings, caused by the long coverts and bastard wing being tipped with that colour: legs fleshy brown: bill black: iris brown: size of the last: sexes alike.—N. B. This species is apt to vary considerably before it has reached maturity as well as under moult, when the back is sometimes lunated with black; and the soft blue portion of the wings is smeared with brownish yellow. At first, the young males are exactly like the female. The following more particular description of

the several members and organs is equally and exactly applicable to both species.

Bill to head as five to four : sometimes merely equal to the head : considerably depressed, except near the tip ; at base more than twice as broad as high ; straight ; culmen produced among the frontal feathers, which are soft and turned back ; sides of the maxilla cut out beyond the centre by a broad membranous and plumose fosse : tomia locked, trenchant, and entire ; towards the gape somewhat incurved—towards the tip, straight : tip of upper mandible inclined and notched ; of the lower, subrecurved and subemarginated, sometimes straight and entire. Nares nearer to the tip than to the gape ; at fore end of the nasal fossæ, lateral, longitudinal, elliptic, large, free, shaded above by a small nude process of the fossal membrane, and set over with tiny incumbent hairs : gape scarcely to the fore angle of the eye and subciliated : wings reaching to centre of tail, firm, first quill bastard, second long, fourth longest ; all four slightly emargined on their inner web. Tail composed of twelve firm feathers, rather longer than in *Turdus*, the four laterals gradated in a small degree, more than in *Turdus*.

Tarsi submedial, stout, rather longer than the central toe, usually smooth, sometimes crossed by three or four scales.

Toes simple, ambulatory, compressed, moderately unequal ; outer basally connected ; hind stouter and subdepressed.

Nails compressed, obtuse : the central fore with both margins dilated but entire.

Head furnished with a soft, full, garruling crest. Tongue simple, flat, medial, subcartilaginous, with cartilaginous, subjagged, tip. Stomach muscular, of medial subequal thickness, the lining tough and grooved. Intestinal canal 20 to 25 inches long, of subequal calibre throughout ; close to anal end, two grain-like cæca.

The intestines are longer in proportion than those of *Turdus* : but otherwise similar.

VI.—On a New Genus of the *Meropidæ*.—By the same.

Order INSESSORES ; Tribe FISSIROSTRES ; Family *Meropidæ*, Vigors.

Order PASSERES, Section SYNDACTYLI, Cuvier. Genus new. *Bucia*, Mihi.

Generic character :—

Bill much elongated and arched throughout, strong, greatly compressed ; the sides nearly vertical, and the ridge flattened towards the base. Wings moderate, full, not acuminate, fourth quill longest,

one and two considerably and subequally gradated. Nares entirely concealed by incumbent setaceous tufts. Tail longish, quadrate, strong. Feet and tongue as in *Merops*. In the family of the *Meropidae* but one genus has heretofore been recognised. If the above characters be admitted to differ materially from those of *Merops*, and if the birds to which they apply are distinguished by a marked and consequent diversity of manners, I presume the propriety of the generic separation will not be questioned.

Now, the bee-eaters proper, according to my experience, have invariably a long and acuminate wing, and aerial swallow-like habits corresponding to that form of wing. Again, their bill is considerably spread laterally except towards the tip; the general form being tetragonal, and the ridge acute.

In *Bucia*, on the contrary, the wing is not so much acuminate as in the thrushes. It is distinguished for considerable, uniform, breadth; not at all for length; and the habits of the bird are quite foreign to perpetual questing on the wing in the open country: they lead it to seek the deep recesses of the forest,—and there, tranquilly seated on a high tree, to watch the casual advent of its prey, and, having seized it, to return directly to its station. The bill, again, is greatly compressed with vertical sides and ridge flat towards the base, convex towards the tip. This organ is, moreover, strong, longer, and more arched than in *Merops*. The *Buciae* are of rare occurrence, and are solitary woodlanders; whereas the bee-eaters proper are gregarious, and common tenants of the champain. Our birds are found in the lower and central regions of Nepal; but seldom or never in the northern. The Nipalese call them *Bukay-chera*; *chera* being merely a corruption of *chiria*, or bird. I latinise the former word to procure a generic appellation.

I have as yet discovered but one species, of which the following is the specific name and character.

*Bucia Nipalensis*. Nipalese *Bucia*, Mihi. Bright parrot green, shaded on the belly and vent with bright buff: lining of the wings and lower tail covert, pure buff: wings internally and basally, and tail on the inferior surface, the same: forehead and gular hackles, blue: the last, formed of a double series of long, composed, drooping plumes, ranged opposite to each other on either side the trachea: bill plumbeous, with black tip: iris brown: legs greenish yellow. Length thirteen to fourteen inches: breadth between the wings seventeen to eighteen: weight three to four oz.: sexes alike.

The bill is more than twice as long as the head. It has a considerable and uniform arcuation throughout; is hard, strong, entire, very moderately excavated internally; at base scarcely broader than high;

and nearly twice as high as broad immediately beyond the base. The ridge above, though narrow, is quite flat from the brow to the centre of length; beyond it and below, convex. So great is the lateral compression, that the sides are plane and nearly vertical: the cutting edges are trenchant and unemarginated: the tips pointed and nearly equal. The nares are rounded, lateral, basal; the fossæ evanescent; the aperture covered closely by a small incumbent tuft of setaceous plumuli.

The tongue is long, flattened, pointed, cartilaginous, and feathered towards the tip. The gape is scarcely cleft to the fore angle of the eye, and smooth.

The wings are of very moderate length, but of great and pretty uniform fulness or breadth: the tertiaries and primaries equal: first and second primaries considerably and subequally gradated: third and fourth nearly equal. Fourth longest: first not bastard; more than half as long as the fourth.

The tail is rather long, and is composed of twelve very firm, broad, and equal feathers. The tarsi are very low: knees and more plumose: acrotarsia scaled: paratarsia smooth: toes long and typically syndactyle; the soles being quite flat, and the exterior toe joined to the central fore as far as the second joint—the interior, as far as the first.

Nails subequal, much compressed, falcate, feeble, and acute: the central fore with a large unpectinated comb. From the chin to the breast depends a row of plumes, inserted opposite to each other on either side the trachea. They are more than two inches long, of composed web, and medial equal breadth. Their mobility gives the living bird a very grotesque appearance. Some such appendage seems to distinguish one of the true bee-eaters, viz. that called *amictus*.

These birds feed principally on bees and their congeners: but they likewise consume great quantities of scarabæi and their like. They are of dull staid manners, and never quit the deepest recesses of the forest.

In the Rája's shooting excursions they are frequently taken alive by the clamorous multitude of sportsmen, some two or more of whom single out a bird and presently make him captive, disconcerted as he is by the noise. It may be worth while to add, in conclusion, that the true bee-eaters are never seen in the mountains: nor the *Bucia* ever, I believe, in the plains. The intestinal canal in our birds is usually about twelve inches long, with cæca of an inch and more in length, placed near to the bottom of it. The stomach is muscular, and of medial subequal thickness. Such, too, is the character of the stomach and intestines in *Merops*.



## VII.—On a new Piscatory Genus of the Strigine Family.—By the same.

Order RAPTORES. Family STRIGIDÆ.

Genus new. *Cultrunguis*, Mihi.

Generic character :—

Bill subequal to the head, straightened as far as the cere, gradually curved beyond it, moderately compressed, strong. Wings medial, equal to the tail, four and five longest and subequal; three first considerably gradated, first not pectinated. Tarsi rather elevate, partially or wholly nude, reticulate. Toes nude, and reticulate with three or four scales next the talons; the anteriors subequal. Talons medial, stout, subequal, compressed, cultrated below\*. Egrets as in *Bubo*, disc and ears as in *Noctua*. Tail short.

It is some time since Gen. HARDWICKE made known to science an owl with nude tarsi†. The circumstance was remarkable, but it does not seem to have led him to any further investigation. Some years back I discovered a similarly-characterised species, and at the same time noted that the talons were sharpened like a knife on their lower edge. In process of time I discovered another species with the tarsi half naked; and this also had cultrated talons. But my specimens of both species happened to have the stomach empty; and I had no immediate means of observing the manners of the birds. In 1830 I had opportunity to note that both species flew well by day, and were constantly found on the banks of rivers. Analogy with the eagles then led me to suspect that these birds might possibly be fishers: but still, until I had seen them fishing, or had obtained specimens with fish in the stomach, I could have no safe ground for assuming so extraordinary a fact. I have now, however, procured specimens with the stomach full of fish, and fish only‡; and I presume that the *expost-facto* inference from structure to habits will scarcely be questioned. Whether HARDWICKE's owl will, when better known, constitute another genus of the fishing owls, remains to be proved: but that bird is sufficiently distinguished from either of mine by its shielded tarsi. In forming a new genus for two new species, essentially alike, and very materially differing both in conformation and habits from all known birds of this family, I rely upon the sanction and support of men of science. And I shall only add, before proceeding to give the specific characters, that those of the genus have been derived from a freer use of ordinary external characters than has heretofore been made in

\* Hence the generic name, *cultratus* and *unguis*.

† Of the yet earlier *Strix nudipes* of Daudin, nothing seems accurately known.

‡ I have just discovered that they prey on crabs as well as common fish.

B. H. H., 2nd July, 1836.

respect to the Strigine birds. CUVIER regarded these birds as constituting but one genus. VIGORS raised this genus to the rank of a family, advancing CUVIER's subgenera to genera. But VIGORS left CUVIER's character as he found them,—whether wisely or not, I shall not presume to say. I suspect, however, that, as species multiply and become accurately known, resort will be had to characters analogous to those by which the Diurnal Raptores (to go no further) are generically distinguished, if not from a sense of the superficialness of the old characters, yet from a want of determinate new ones. It is surely reasonable to distinguish all the *Raptores* upon similar principles; and, as the external construction of the Strigine birds certainly renders this quite practicable, so, I believe, that the analogies thus necessarily suggested to the student between them and the Falconidæ, would tend to the higher uses of the science.

First species: *C. Flavipes*, yellow-footed Cultrunguis, Mihi. Head, neck and body below, bright rusty, each plume striped down the shaft with saturate brown; the stripes narrower below than above: disc and leg-plumes immaculate: back wings and tail, saturate brown, transversely barred, and largely emarginated and tipt, with rusty; the bars interrupted on the shafts, and frequently resembling triangular indentations: four bars across the great quills and tail feathers; and the tips of both largely paled: plumes of the thighs and tarsi downy: half the latter nude: nude portion and the toes, flavescent fleshy grey: talons horn yellow: bill blue, with a dusky tip: iris bright yellow: edges of eye-lids black: twenty-two to twenty-three inches long by 55 to 58 wide. Weight three and a half lbs.

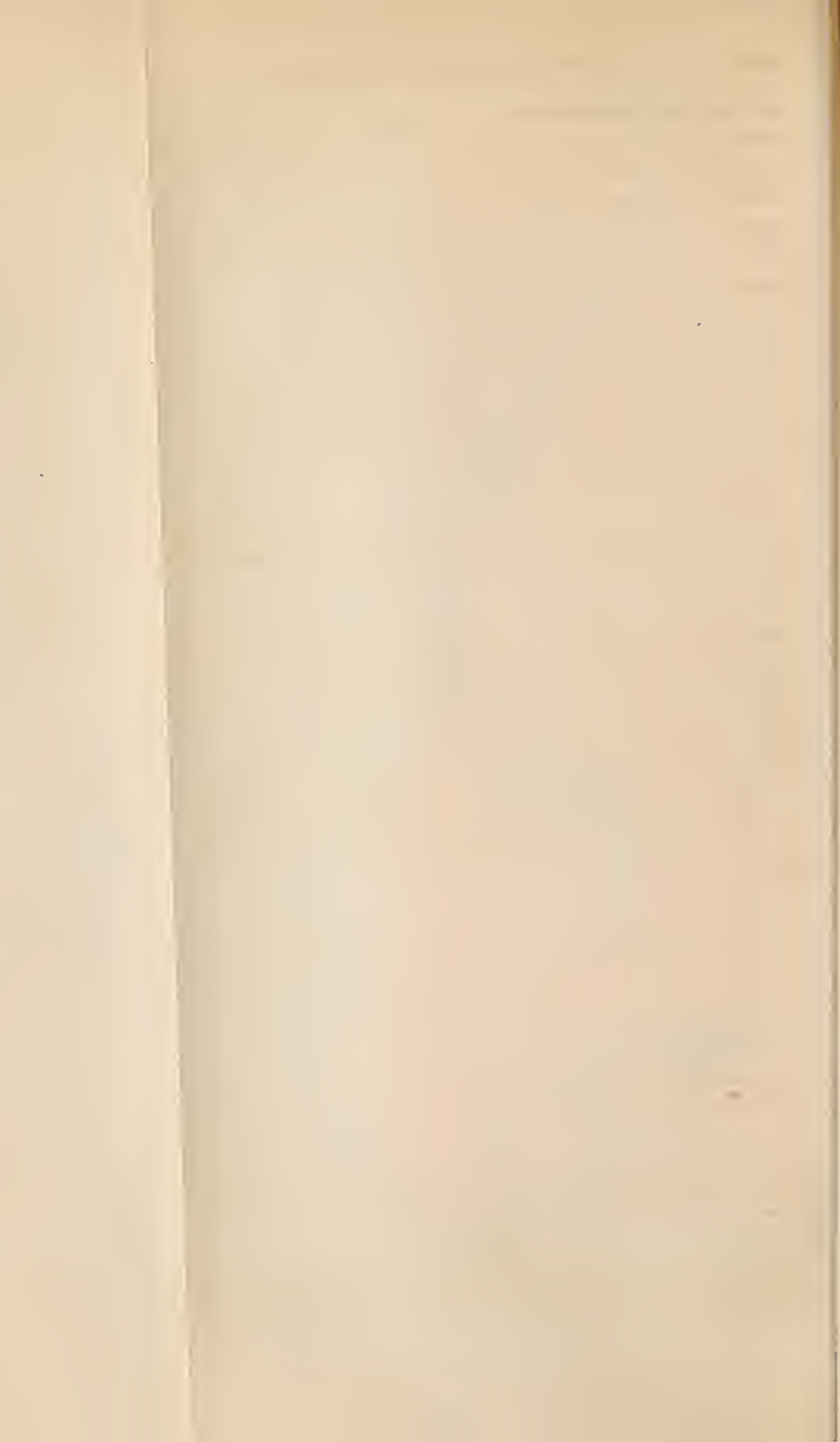
N. B. The sexes resemble each other both in size and colours.

Second species: *Cultrunguis Nigripes*, Mihi. Head, neck, back, and whole body below, pale earthy brown, with a fawn tinge; paler and albescent on the abdominal surface; each plume striped down the shaft with a saturate brown mark, which is narrower below than above; and each also crossed with numerous slender zigzags of brownish fawn colour: wings and tail saturate brown, triangularly indented or cross-barred, and broadly tipt, with obscure rufous yellow, which is freckled, for the most part, on the tertiaries, and scapulars, with brown: great quills and rectrices, quadricinctate, as in the preceding: disc earthy brown: thighs pale fawn: both immaculate: throat white, and almost or wholly unmarked: wings albescent towards the roots of the feathers: bill dusky horn: iris bright yellow: edge of eye-lid black: tarsi and toes, purpurescent dusky: talons the same, with black points: thighs and knees to the front, covered with downy plumes: tarsi and toes, nude: size of the last.



*Callitragus Flavipes* with *Nigripes* type of the Genus  
*Callitragus*

at the inner side of the foot. size of nature.



N. B. This species bears an extreme resemblance, in point of colours and size, as in other respects, to the *Strix Hardwickii*. But it may be at once distinguished therefrom by its reticulated tarsi.

The sexes, as in the preceding species, are alike both *in size* and colours. These birds moult once a year, between June and October, inclusive; they breed in February-March; and are almost equally common in the several regions of Nepál, notwithstanding the great diversity of climate.

The structure of their stomach and intestines offers no marked peculiarity. The intestinal canal is from three and half to four feet long; very thick-coated throughout; considerably wider above than below; and furnished with two thin cæca, from three to four inches long, which are situated near the anal extremity of the canal, and widened considerably at their distad end.

The stomach is rounded, considerably and equally thickened in its coats, and provided with a toughish and rugose lining, which is easily separated.

The coats do not consist of proper muscle, but of a substance between gland and cartilage; for which I know no name, commonly as it occurs. The succentorial stomach is purely glandular, with soft papillated lining, not distinguishable from the body of the organ; the points of the papillæ being, in fact, mere excretory pores directly in contact with the secreting substance.

The following detail of dimensions is taken from a male specimen of *Flavipes*: but so similar are the two species, and the sexes of both, that it will equally represent the average size and proportions of the males and females of both species.

	<i>ft. in.</i>
Tip bill to tip tail, . . . . .	1 10
Bill, length of, . . . . .	0 2
— basal height of, . . . . .	0 1 $\frac{3}{4}$
— basal breadth of, . . . . .	0 1 $\frac{3}{4}$
Tail, . . . . .	0 9
Tarsus, . . . . .	0 3 $\frac{1}{2}$
Central toe, . . . . .	0 2 $\frac{3}{4}$
Expanse of wings, . . . . .	4 10
Weight, . . . . .	3 $\frac{1}{2}$ lbs.

VIII.—*Report of the Society of Arts on Specimens of Rice, Wool, &c. from Nepál and Assam.*

[Communicated by Government.]

The Society having received from their Committee of Colonies and Trade a report on sundry articles sent to them for examination from

the Honorable Court of Directors of the East India Company, have been pleased to approve the same, and have directed their Secretary to transmit a copy of the Report forthwith to the Honorable the Court of Directors, with an assurance that the Society will at all times be happy to receive from them any communications connected with the objects of this Society.

(Signed) ARTHUR AIKIN, *Secy.*

REPORT.

The Committee of Colonies and Trade having been directed by the Society to examine sundry articles sent to the Society by the Honorable the Court of Directors of the East India Company, and referred to this Committee 4th November, 1835, report as follows :

I. The Soomla or Himalaya paddy, or mountain rice, received from Mr. HODGSON, Resident at Nepal, appears to be of the same kind as a sample (comprising five varieties) sent to the Society of Arts in 1821, by Dr. WALLICH.

From the great height above the level of the sea at which this grain is cultivated in Nepal, it is suggested that it may perhaps be advantageously introduced as an agricultural crop in the North of Europe.

Before this can be determined in the affirmative, it is necessary to prove, first, that this grain is capable of coming to maturity in the climate of the North of Europe ; and, secondly, that the clear profit of a crop of hill-rice from a given area shall be at least equal to that of a crop of oats, barley, or rye from the same area.

Several parcels of the former quantity of hill-rice were distributed by the Society to persons residing in various parts of England ; and several were likewise sent to France, to Switzerland, to Germany, and to Russia. Of those sent to the Continent, the Society has received no intelligence ; and of those distributed in England, the result has been, with one exception, that the seeds did not germinate. A notice likewise was inserted in one of the French journals a few years ago, from which it appeared that various attempts had been made to grow the hill-rice of Nepal in some of the districts of France from seed distributed by the Government of that country, but wholly without success.

Mr. ANDERSON, the Curator of the Apothecaries' garden at Chelsea, was one of those who undertook to make an experiment on the possibility of growing the hill-rice in England, and was, in consequence, furnished with some seeds of the five varieties at that time in the Society's possession. They were sown in March, and some of each kind germinated and did very well while they were kept in the

hot-house. In May they were removed to the green-house, where they became stout, healthy plants. In the end of June they were transferred to a sheltered place in a basin for the growth of aquatic plants, having nine inches depth of water and twelve of mud; here they grew and promised well till the beginning of August, when, the weather becoming cloudy and rather cold, they became sickly, and were all dead by the beginning of September without having come into flower. It seems, therefore, evident that the temperature even of the warmer parts of England is not sufficient for the successful cultivation of hill-rice.

The latitude of Sirinagar, where this grain is cultivated, is about  $30^{\circ}$ ; that is, under nearly the same parallel as Cairo; and although, from its height above the sea and its vicinity to ridges of snowy mountains, the winters are severe, yet in such situations the summers are much hotter than on lower levels in higher latitudes, where the average temperature of the whole year is not perhaps greater than that of the middle of one of Europe. In Florence, and even in Rome, frost and snow are by no means of unfrequent occurrence in the winter, and yet the summers are hot enough to bring to perfection many annual vegetable products, rice among the rest, which will not succeed north of the Alps.

Concerning the second head of inquiry,—viz. the comparative profit of land cropped with hill-rice, and with barley or oats,—the Committee are not in possession of a single fact on which to found an opinion. But they may be allowed to state that, as the farinaceous food of Europeans is consumed chiefly in the form of bread or of cakes, and as rice is not capable of being made into either one or the other of these preparations by the simple process of kneading with cold water and then baking, either an additional process of cooking would be necessary in the attempt to substitute rice for the ordinary European grains, or the new habit must be superinduced, of doing without bread and replacing it by boiled rice.

In order to obtain a correct opinion of the comparative value of hill-rice with the other qualities of this grain in the London market, a sample was sent to Mr. EWBANK for examination. That gentleman reports that fine Carolina rice, imported in the state of paddy and cleaned here, is worth 30 shillings per cwt.; that fine Bengal rice cleaned here, is worth 23 shillings per cwt.; that rough and inferior East India rice, imported half-cleaned and finished here, is worth 14 shillings per cwt. This latter was purchased from the importer at eight shillings, lost 20 per cent. in cleaning, and the cost of this process was two shillings per cwt.; so that there remained only two shillings per cwt. for interest, profit, &c.

The hill-rice is nearly of the same quality as the latter kind, being dark coloured, opaque, and not at all calculated for the English market.

The opinion, therefore, of the Committee is, that the hill-rice cannot be successfully cultivated in Europe; and that, if capable of being so cultivated, it could not enter into competition in the European market with Bengal rice.

II. The wool of the Hooniah sheep of Tibet consists of two samples,—one, of the wool in its natural state; and the other, of a portion from which the black hairs have been separated.

The former is of precisely the same quality as a parcel sent last year (1834) to the Society by Dr. WALLICH; and the market price of it in London, at that time, was, according to Mr. EBSWORTH, of Basinghall Street, from 10 to 11 pence per lb.

The two samples, after being examined by the Committee, were also examined by Mr. EBSWORTH, and by Mr. SOUTHEY, of Coleman Street.

According to Mr. EBSWORTH, the value of the wool in its unsorted state is from five to seven pence per lb. A considerable quantity of similar wool from India, but rather coarser, has been sold in the London market during the last two years at from two and half to seven pence per lb. The sorted wool is worse than the unsorted; for, in separating the dirt, all the finer filaments have likewise been taken away.

Mr. SOUTHEY estimates the value of the unsorted wool at about 10 pence per lb.; and states, that it greatly resembles a large portion of the wool imported from Jutland and Denmark.

Mr. HODGSON's expression that the "wool is said to be superb," does not in the least apply to the sample actually sent by him; but as he has stated that the animal "is of trans-Himalayan origin, and will not bear the heats of Nepál\*," it seems probable that the wool in question was grown in that country, and has greatly degenerated; it being well known that the sheep of Barbary produce hair rather than wool.

The Committee think it incumbent on them to notice an opinion expressed by Mr. SOUTHEY, from the great attention which that gentleman has paid to the growth of wool; namely, that the Hooniah and other coarse qualities of Indian wool, of which many hundred bales have recently been imported, would be very materially improved by the introduction of some well-selected rams, of which an ample supply might no doubt be obtained from New South Wales.

\* This expression completely confirms the observations previously made respecting the hill-rice of Nepál, which thus seems to grow in a climate too hot for the production of wool.



III. Two large pieces of cloth made from the down of the Simool or Tree-Cotton, *Bombax heptaphyllum*, from Gowahatty in Assam, the place of their manufacture.

On examining the cloth it appears that the fine short down of the *Bombax* has been spun into a large wove slightly twisted cord or roving, and that this is made into cloth by interweaving it with a warp and short of common thin cotton-thread, much in the manner of carpeting. It composes a loose cloth, incapable, probably, of being washed without injury, but considerably warm, very elastic, and light.

From the shortness of the staple and the great elasticity of the fibre, it is not at all probable that it could be spun by the machinery now in use for spinning cotton; but the combination which it exhibits, of fineness of fibre with great elasticity will, no doubt, make it rank high as a non-conductor of heat, and therefore fit it for making wadding, and for stuffing muffs, and perhaps mattresses. When carded with wool it might probably form the basis of fabrics of great warmth, lightness and silky softness.

IV. Sample of Safflower made at Myrung in Assam, by Lieut. RUTHERFORD.

The Committee not wishing to rely entirely on their own judgment in this case, more especially as the whole quantity placed at the disposal of the Society is not enough for a satisfactory comparative trial either on silk or on cotton, have availed themselves of the opinion of several dyers and brokers, the concurrence of whose judgment with that of the Committee induces them to consider it as correct.

Mr. GRIEVE, silk dyer, of Booth Street, considers the sample to be clear and of good quality.

Messrs. RACINE and JACQUES, silk dyers, of Spitalfields, consider the sample to possess a fair proportion of colour, though not of equal quality with the best from Bengal.

Messrs. JOHNSON and RENNEY exhibited to the Committee samples of safflower from different places and of various qualities. They stated that the best Indian comes from Dacca, of which there are two varieties, one from Paturaghauta, and the other from Billespour; the former of which is the more valuable to the amount of about 20 per cent.

Mr. RENNEY stated, that during his residence in India he paid much attention to the preparation of this dyeing drug. The time for gathering the flowers is near the end of the dry season, when the tanks are almost exhausted; in consequence of which, the water employed to wash the safflower is generally muddy and swarming with animalculæ; hence it happens that the cakes, though packed in

close boxes, are often more or less injured by worms ; which injury he conceives would be greatly diminished by substituting clean spring water for that of the tanks. The sample before the Committee is fair and clean, and suitable for the market, and is worth about £ 7 a cwt.

The finest safflower of all comes from China, but is not an article of regular appearance in the market. The comparative value of it is as high as £ 30 per cwt.

Mr. EMLEY, drug-broker, and a Member of the Committee, considers the sample to be of good fair merchantable quality, and in value as stated by MESSRS. JOHNSON and RENNEY.

V. Two skeins of fibre made from the leaves of the wild pine-apple, and two net bags made of the same material, sent from Gowahatty in Assam, by Captain JENKINS.

The sample is not sufficient for any fair comparative trial of its tenacity.

The Society are already in possession of fibre from the leaves of the black Antigua pine and from the Penguin pine of Jamaica, which latter is occasionally made into ropes in the West Indies, but is not the object of any regular manufacture, the expense of labour in those colonies rendering it more advantageous to import from England cordage ready made. It appears likewise (from BURNETT'S Wanderings in New South Wales, &c. vol. ii. p. 207), that at Singapore the Chinese settlers obtain fibre from the leaves of the wild pine-apple, which fibres are exported to China, where they are employed as a material for linen. Also in the Journal of the Asiatic Society of Bengal, for January, 1832, is a paper by Lieut.-Col. WATSON on Chirra Punji, the sanatory station recently occupied by the East India Company, in which it is stated, p. 27, that the pine-apple plant flourishes in great abundance in the adjacent valleys, 4,200 feet above the level of the sea, and that the leaves are gathered by the natives for the purpose of obtaining from them, by a very simple process, a strong fibre, which they employ as the material of the net pouches or bags in common use among them.

From these indications it would perhaps be worth while for the Court of Directors to have a quantity of the fibre imported, sufficient for a fair comparative trial with hemp and flax.

IV. Sample of the wood of the Nipal Privet, *Ligustrum Nipalense*, from Mr. HODGSON.

A specimen of this wood was found among those sent to England by Dr. WALLICH, and of which a catalogue is published in the 48th vol of the Society's Transactions. It appearing to Mr. AIKIN, the

Secretary, when drawing up the catalogue\*, that the specimen referred to promised to be useful to engravers on wood, it was accordingly put into the hands of Mr. BRANSTON, who reported very favorably respecting it. That specimen was a piece of a bough or trunk a few inches in diameter, and had been taken sufficiently high above the root to be of a perfectly uniform texture. The present sample, from its broad irregular rings, appears to have been cut as near as possible to the root, in order to get it of the greatest size : but, in so doing, the uniformity of texture absolutely necessary to fit it for use by the engraver has been wholly overlooked, and the result is a sample perfectly worthless for the object for which it is intended.

By order :

(Signed) ARTHUR AIKIN, Secy.

IX.—*Proceedings of the Asiatic Society.*

*Wednesday Evening, the 6th July, 1836.*

The Rev. Dr. MILL, Vice-President, in the chair.

Captain R. LLOYD, I. N., Dr. D. STEWART, and Dr. McCLELLAND, proposed at the last meeting, were ballotted for, and elected members of the Society.

Mr. WM. SPEIR was proposed by Mr. J. PRINSEP, seconded by Dr. MILL.

Sergeant DAWE, of the Delhi Canal Establishment, proposed as an associate member by Mr. J. PRINSEP, seconded by Dr. PEARSON.

Read a letter from WM. MACKENZIE, Esq., stating that, in consequence of the pressure of business, and other indispensable engagements, he was obliged to retire from the Society.

Read a letter from CHARLES KONIG, Foreign Secretary to the Royal Society, acknowledging the receipt of the Journal, and Index As. Res.

The following circular, enclosed in the above, was read and directed to be printed for general information :—

*Royal Society of London, Somerset House, Nov. 19, 1835.*

SIR,

I am directed by His Royal Highness the President and Council, to acquaint you, for the information of the Asiatic Society of Bengal, that His Majesty the King has been pleased to grant two Gold Medals, of the value of Fifty Guineas each, to be awarded by the Royal Society on the day of their Anniversary Meeting in each succeeding year, for the most important discoveries in any one principal branch of Physical and Mathematical knowledge.

His Majesty having graciously expressed a wish that scientific men of all nations should be invited to afford the aid of their talents and researches, I am accordingly directed by the Council to announce to you, Sir, that the Royal Medals for 1838 will be awarded in that year, the one to the author of the most important unpublished paper in Chemistry which may have been communicated to the Royal Society for insertion in their Transactions, after the present date and prior to the month of June in the year 1838 ;—the other, to the author of

\* See Journal As. Soc. II. 182.

the most important unpublished paper in Physics, which may have been communicated to the Royal Society for insertion in their Transactions, after the present date and prior to the month of June in the year 1838.

I have the honour to be,

Sir,

Your very obedient humble servant,

CHAS. KONIG, *For. Sec. R. S.*

TO JAMES PRINSEP, Esq.

*Secretary of the Asiatic Society of Bengal, Calcutta.*

Read a letter from H. T. PRINSEP, Esq. Secretary to the Government of India, General Department, intimating that the Right Honorable the Governor of Bengal had been pleased to empower the Curators of the Public Library to make over to the Society the Oriental books printed in Europe, on the same conditions, with the manuscripts and works already transferred from the College of Fort William. The Secretary stated that he had in consequence received charge of three hundred volumes—some few being, however, duplicates of works already in the library.

A letter from the Civil Auditor, desiring to be furnished with an abstract of the establishment entertained for the care of the Government Oriental Works. Understanding the 78 rupees monthly to be a consolidated allowance, in which case no detail of its expenditure need be furnished, Resolved to make a reference on the subject to Government.

*Library.*

Read a letter from H. T. PRINSEP, Esq. Secretary to the Government of India, forwarding on behalf of the Honorable the Court of Directors for presentation to the Society, a copy of the Catalogue of Stars in the Southern Hemisphere, by Lieut. Johnson, H. C. Ast. at St. Helena.

Read a Persian note from MANU LAL, presenting a copy of a compilation from standard Persian and Hindustani Poets, published by himself under the name of *Guldesteh i Nishât*,—The Nosegay of Pleasure.

Read a letter from Kumar RADHACANTH DEB Behadur, forwarding for presentation to the Society a copy of his great publication, entitled *Sabda Calpa Drama*, an Encyclopedical Lexicon in Sanscrit, vols. 1, 2, and 3. The subsequent or the remaining vols. will be forwarded when published. Also translation of an extract from a Horticultural work in Persian, printed by the Roy. As. Soc. of London.

A volume of selected papers of a literary nature published in the Government Gazette while Mr. WILSON was Editor, was presented by *Mr. James Prinsep*.

Meteorological Registers for April and May 1836, were presented by the *Surveyor General*.

*Museum.*

Read a letter from Prof. GOODEVE, Secretary to the Medical and Physical Society, requesting the Society's acceptance of a pair of glazed almirahs, their contents having been transferred to the Medical College.

Two large chatta-hats from Assám, were presented by *Dr. W. B. Davis*.

Various rude specimens of domestic implements from New Zealand, by *Mr. H. T. Prinsep*.

*Literary and Antiquities.*

Read a letter from R. D. MANGLES, Esq. Secretary to the Government of Bengal, Judicial Department, transmitting on behalf of the Right Honourable the Governor of Bengal, a Census of the population of the town of Gyah and its suburbs, framed under the superintendence of Mr. HATHORN, the Magistrate of *Behar*.

A note on the origin of the Armenian era and the reformation of the Haican Kalendar, by *Mr. Johannes Avdall*.

Read a letter from L. WILKINSON, Esq. Agent at *Bhopal*, forwarding the copy of an inscription on a copper-plate lately found at Piplianagar in the Shujal Perganah, by a krisan, or husbandman, in ploughing; with an English translation.

Read a paper by Major LLOYD, on the sacred silken vests of the Tibetan priests, alluded to in TURNER'S Embassy. They are adorned with images, and have a lettered border of sacred texts woven into the scarf: one of these had been submitted to Mr. CSOMA DE KÖRÖS, and by him translated.

[This note will be printed in our next.]

Mr. HODGSON forwarded an amended list of the Sanscrit Bauddha works procurable in Nepál. Such as have been sent home to Paris or London, were noted by an asterisk.

*Physical.*

A note on the progress of the boring in Fort William was read by Capt. TAYLOR, Town Major. [Vide infra.]

A memorandum of a well sunk in the Chandpur bunds, near the foot of the Sewalík range, was likewise communicated by Lieutenant BAKER, Engineers.

A descriptive catalogue of part of the Society's collection of Silhet shells, was received from Mr. W. H. BENSON, M. A. S.

[Printed in the present number.]

A letter from Lieutenant GEO. FULLJAMES, giving further detail of the fossil discoveries at Perim, and announcing the despatch of specimens for the Society's museum.

[As this letter arrived while the Baron HUGEL'S note was in the press, the interesting particulars it contained were appended to that paper; see last No. p. 290.]

Mr. B. H. HODGSON transmitted 27 further specimens of his Illustrations of Nipálese Zoology; also papers,

On three new genera of thrush.

On three new species of woodpecker.

Dr. W. CANTOR submitted his sketch of an undescribed hooded serpent with fangs and maxillar teeth, accompanied with coloured drawings on a large scale.

Dr. N. WALLICH presented two papers on new genera of plants, by Dr. GRIFFITHS, to which the author has given the names of *Bucklandia* and *Sedgwickia*.

[These will be inserted in our next.]

*Presentations to the Museum of Natural History.*

Specimens of the great-eared owl, (*Bubo Mucrocephalu*;) Flammeous Fly-catcher, (*Muscicupu Flammea*;) Gorial King-fisher, (*Halcyon Gorial*;) black-headed Oriole, (*Oriolus Melanocephulus*;) Bengal woodpecker, (*Picus Bengalensis*;)—Woodpecker, (*Picus Macei*;) skulls of Hornbill, (*Buceros Homrai*;) and Pelican, (*Pelecanus Onocrotulus*;) and skin of the Amethystine Python; presented by *W. B. Davis, Esq.*

Specimens of Silky-throat Ráyá, (*Raya Sericeo-gula*;) Nepal Bucia, (*Bucia Nepalensis*;) black-headed Sibia, (*Sibia Nigriceps*;) Picaoid Sibia, (*Sibia Picaoides*;) and blue-winged Chloropsis, (*Chloropsis Cyanopterus*;) presented by *B. H. Hodgson, Esq.*

The above are specimens of new genera, instituted by Mr. HODGSON; papers on which he has favored the Society with; and the specimens will be figured in his great work on the Fauna of Nepal.

Specimens of white eye-browed Jacana, (*Parra Superciliosa*;) and Girra Teal, (*Anas Girra*;) presented by *W. C. Smith, Esq.*

The internal ear of the Whale, presented by *H. T. Prinsep, Esq.*

Specimens were exhibited of Birds from Almorah, mounted in the Museum; and an articulated skeleton of the Adjutant, also prepared there.

On the conclusion of the ordinary business of the meeting,

A letter was read from the Most Rev. the Bishop of Cochin China, (who was present at the meeting) resubmitting a proposition for the publication of his Anamitan Dictionary, and stating that in an interview with the Governor General, he had been empowered by his Lordship to renew his application to Govt. through the Secretary of the Society.

The favorable recommendation embodied in the report of the Committee of Papers last year, was qualified on one point—namely, in as much as the specimen of the work then before them wanted the Chinese character, which was deemed essential to its perfection as a literary work. This was now removed, and the Bishop was present, and ready to engage for its correct insertion: he would also engage, should it be determined to publish in lithography, to write, or superintend and correct, the whole of the work on transfer paper, for the consideration of 4,000 rupees. The paper and printing might cost about 1,200 more. On these new grounds it was agreed that there would be no disrespect in submitting a second application to Government in favor of the proposition, which the Secretary was requested to prepare.

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*Note on the Progress of the Boring in Fort William. By Captain TAYLOR, M. A. S.*

In laying before the Society the accompanying section\* and specimens of the strata found in the recent operations carried on in Fort William for the discovery of a spring of pure water, it may be expected that I should give some account of the progress and state of the experiments; I therefore beg to offer the following observations.

\* We postpone this until the operations, hitherto so successful, may have been brought to a close.—ED.

A detail of the early part of these operations, which commenced in October last, would comprise little besides a narrative of difficulties barren of facts scientifically interesting. It will be sufficient briefly to state, that in the first attempt a depth of 136 feet only was attained by boring; when the same quicksand which in every case seems to have baffled General GARSTIN's efforts to proceed, put an end to this also.—The tubes, without support in the loose sand, separated in several places, and fell out of the perpendicular; all attempts to rejoin or recover them failed.

As the same strata, and consequently in so much as that is concerned, the same difficulties might be expected to occur in boring in any part of the alluvial formation of the delta of the Ganges, it was not supposed that any material advantage would be gained by changing the site of operations; it was resolved to proceed with a second attempt in the immediate vicinity of that where we had just failed.

On the 28th of April another shaft was commenced; experience had suggested several improvements in the arrangement of the machinery, and taught us to use the tools with better effect. The improved skill of the workmen was made manifest by the fact, that the depth of 126 feet, which in the first attempt occupied forty-seven working days to attain, was now reached in eighteen with ease and facility.

So far the strata passed through, corresponded precisely, in their order at least, with all that had occurred on former occasions. The same quicksand which caused the abandonment of the first attempt was reached at 120 feet; and at this point our difficulties commenced. To obviate the disaster which had rendered our labour abortive in the first instance, the tubes were secured against dislocation in the loose sand by screws at their joints; and to this precaution must be attributed the success of the work so far. The sand alluded to is of so loose, I may say, semifluid a character, that on the removal of a portion of the water which stands in the tube to 15 feet from the surface, it immediately rose 17 feet; and although at this time the work was prosecuted night and day without any intermission, the sand rose faster in the tubes than it could be removed; so that at the end of eleven days and nights of incessant toil it had risen from 124 to 103 feet.

Hence it became evident that the only mode of overcoming the obstacles presented by the sand was to force the tubing down, until coming in contact with some firm stratum, the sand should be excluded. By unremitting perseverance and much labour, frequently gaining but a few inches in the day, the tubes at last attained a depth of 157 feet. The sand was gained upon; at 152 feet it was observed to become darker in color and coarser in grain, containing a quantity of what appeared to be small pieces of iron ore\*. At 159 feet a stiff clay with yellow veins occurred, resembling in appearance a thin stratum passed at 127 feet. The borer, which during the prevalence of the sand was always behind the tubing, sometimes several feet, now penetrated in advance of it, and in less than 24 hours reached the depth of 175 feet.

The clay at 163 feet changed, for a short space, remarkably in color and substance; becoming dark, friable, and apparently containing much vegetable and possibly some ferruginous matter. At 170 feet it became sandy, and gradually passed into a very coarse sharp sand mixed with small fragments of quartz and felspar, which was brought up from 175 feet.

This gravel or shingle at present impedes further progress, until we shall have made some auger capable of penetrating and lifting the stones.

\* Red waterworm nodules of hydrated oxide, like the laterite of South India.—ED.

Meteorological Register, kept at the Assay Office, Calcutta, for the Month of June, 1836.

Day of the Month.	Observations at 10 A. M.							Observations at 4 P. M.							Register Thermomet. Extremes.		Wind.		Weather.			
	New Stand. Barometer at 32°.	Old Stand. Barometer at 32°.	Difference.	Therm. in air.	Wet bulb Therm. in air.	Leslie's Dif. Hygrom.	Dew point at 9 A. M.	Hair Hygrometer.	New Stand. Barometer at 32°.	Old Stand. Barometer at 32°.	Difference.	Therm. in air.	Wet bulb Therm. in air.	Leslie's Dif. Hygrom.	Dew point at 4 P. M.	Hair Hygrometer.	Cold on roof.	Heat in sun on roof.	Rain.	Morning.	10 A. M.	4 P. M.
1	29.457	543	29.974	569	83.4	5.9	4.8	75.4	93	92	1	569	83.4	5.9	4.8	75.4	93	92	1	sw.	sw.	sw.
2	524	565	109	596	88.5	7.5	6.0	75.4	88	87	1	596	88.5	7.5	6.0	75.4	88	87	1	sw.	sw.	sw.
3	580	630	20	662	93.1	6.4	5.3	75.6	93	92	1	662	93.1	6.4	5.3	75.6	93	92	1	sw.	sw.	sw.
4	601	648	106	692	96.3	7.1	5.6	75.0	92	91	1	692	96.3	7.1	5.6	75.0	92	91	1	sw.	sw.	sw.
5	663	700	100	752	103.4	6.9	5.0	75.0	88	87	1	752	103.4	6.9	5.0	75.0	88	87	1	sw.	sw.	sw.
6	720	760	104	816	109.4	6.9	5.6		91	90	1	816	109.4	6.9	5.6		91	90	1	sw.	sw.	sw.
7	477	527	32	605	96.1	6.5	5.4		92	91	1	605	96.1	6.5	5.4		92	91	1	sw.	sw.	sw.
8	497	528	906	622	90.8	6.4	4.9	91	91	91	1	622	90.8	6.4	4.9	91	91	91	1	sw.	sw.	sw.
9	515	552	136	636	96.9	8.7	7.4	78.5	86	85	1	636	96.9	8.7	7.4	78.5	86	85	1	sw.	sw.	sw.
10	594	625	29	696	101.9	6.6	5.1	77.7	89	88	1	696	101.9	6.6	5.1	77.7	89	88	1	sw.	sw.	sw.
11	636	666	101	738	107.9	7.4	6.6	74.6	89	88	1	738	107.9	7.4	6.6	74.6	89	88	1	sw.	sw.	sw.
12	567	596	405	666	101.9	6.6	5.1	74.6	89	88	1	666	101.9	6.6	5.1	74.6	89	88	1	sw.	sw.	sw.
13	563	596	372	666	101.9	6.6	5.1	74.6	89	88	1	666	101.9	6.6	5.1	74.6	89	88	1	sw.	sw.	sw.
14	526	563	312	636	97.9	6.0	5.5	91	91	91	1	636	97.9	6.0	5.5	91	91	91	1	sw.	sw.	sw.
15	550	590	383	677	102.9	6.5	5.0	76.0	91	90	1	677	102.9	6.5	5.0	76.0	91	90	1	sw.	sw.	sw.
16	583	628	441	722	107.9	6.4	4.7	78.0	88	87	1	722	107.9	6.4	4.7	78.0	88	87	1	sw.	sw.	sw.
17	603	628	400	732	108.0	6.3	4.6	78.0	88	87	1	732	108.0	6.3	4.6	78.0	88	87	1	sw.	sw.	sw.
18	683	704	390	816	116.0	6.3	4.6	78.0	88	87	1	816	116.0	6.3	4.6	78.0	88	87	1	sw.	sw.	sw.
19	558	576	450	636	96.9	6.3	5.1	76.7	91	90	1	636	96.9	6.3	5.1	76.7	91	90	1	sw.	sw.	sw.
20	613	634	430	666	101.9	6.3	5.1	76.7	91	90	1	666	101.9	6.3	5.1	76.7	91	90	1	sw.	sw.	sw.
21	557	611	363	613	97.8	6.3	5.1	76.7	91	90	1	613	97.8	6.3	5.1	76.7	91	90	1	sw.	sw.	sw.
22	528	561	363	613	97.8	6.3	5.1	76.7	91	90	1	613	97.8	6.3	5.1	76.7	91	90	1	sw.	sw.	sw.
23	497	534	324	613	97.8	6.3	5.1	76.7	91	90	1	613	97.8	6.3	5.1	76.7	91	90	1	sw.	sw.	sw.
24	477	523	294	613	97.8	6.3	5.1	76.7	91	90	1	613	97.8	6.3	5.1	76.7	91	90	1	sw.	sw.	sw.
25	411	456	226	526	90.5	7.8	6.3		89	88	1	526	90.5	7.8	6.3		89	88	1	sw.	sw.	sw.
26	352	378	192	456	83.9	4.3	3.8	77.4	94	93	1	456	83.9	4.3	3.8	77.4	94	93	1	sw.	sw.	sw.
27	265	292	118	352	78.4	3.9	2.8		96	95	1	352	78.4	3.9	2.8		96	95	1	sw.	sw.	sw.
28	465	527	358	613	97.8	6.3	5.1	76.7	91	90	1	613	97.8	6.3	5.1	76.7	91	90	1	sw.	sw.	sw.
29	522	554	337	613	97.8	6.3	5.1	76.7	91	90	1	613	97.8	6.3	5.1	76.7	91	90	1	sw.	sw.	sw.
30	480	511	312	526	86.5	4.7	3.6		97	96	1	526	86.5	4.7	3.6		97	96	1	sw.	sw.	sw.
Mean, 29, 625	537			676	106.7	6.7	5.2	76.1	91	90	1	676	106.7	6.7	5.2	76.1	91	90	1	sw.	sw.	sw.

The new standard barometer stands this month, .032 at 10 A. M. and .042 at 4 P. M. lower than my former standard, giving the same difference between the morning and evening readings as remarked during the two preceding months.

The sulphuric acid in the "wet barometer" had a specific gravity of 1.344 up to the afternoon of the 12th, when it was changed for a stronger acid of 1.400 sp. gr. at 3 p.m. The tensions were taken by deducting its readings from those of the *old* stand. Bar. as should have been done last month, where a correction of +.033 must be applied to the columns of tensions; (the sight would also have been +.) the continental aqueous tension of Sulphuric acid sp. gr. 1.344 (compared with that of pure acid) is then fore 44; and of sulphuric acid sp. gr. 1.40, is 19.





